A User's Guide to the World Oil Project Demand Data Base*

by
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TABLE OF CONTENTS

CHAPTER ONE

Introduction

The User's Guide to the World Oil Project Demand Database* is designed to serve several purposes. One objective is to document the data used in the World Oil Project demand analysis; to report the sources used, and to describe the transformations required to convert the data to standardized units. The guide should also be helpful as a reference for finding out what information we have compiled, how to access this data, and to understand some of the issues involved in energy consumption information. This information will be presented with separate chapters for the different sections of the database and for the different issues involved. Most of the information is also presented in tabular form for quick reference to a complete listing.

The data has been compiled on TROLL,** a computer software package which provides a comprehensive environment for creating, estimating and simulating economic models. All of the data files cover years 1950-1974. The data base can easily be made available to other groups.

A brief background of the origin of the database may help the user to understand its structure and organization. The data to be described

*This data base was assembled as part of an econometric study of world energy demand, and is part of a project to develop analytical models of the world oil market.

**For further information contact Information Processing Service at MIT.

here is the demand data, used for econometric estimation and analysis. There was an interaction between the data collection and the modeling effort: detailed questions concerning the oil market were to be investigated and data availability had to be ascertained before precise research questions could be formulated.

The result has been an emphasis on the following: 1) for the industrial sector data: data on oil and other fuels consumed by industry amd prices of energy, capital and labor; 2) for the residential sector: data on consumers' expenditures on energy and other consumer items, prices and disposable income; 3) for the transportation sector: data on the stock of vehicles, gasoline and diesel fuel consumption, prices, and taxes on fuels; and 4) data on oil consumption by product, prices, and levels of economic activity for individual countries and aggregate world regions. The most important oil consuming countries have the most extensive energy price, quantity, and expenditure data available and therefore are included in the database in the most detail.

The data is organized by sector as described above, rather than by country. Since some data is common to more than one sector there may be some duplication of information between sectors, and in order to locate all of the data available for one country it may be necessary to look at several sectors. At the end of this section, Tables 1-1 through 1-4 present summarized data availability, listing the countries and variables for each sector.

Chapters Two through Five deal exclusively with the data. Chapter Two discusses the industrial data, consumption of fuels, prices of energy, capital and labor, as summarized in Table 1-1. How the information was obtained, and from where, will be described in Chapter Two, followed by a

table which alphabetically lists all of the data files. The other chapters on data have the same format. Chapter Three presents the residential data, consumers expenditures and retail prices as summarized in Table 1-2. Chapter Four gives the transportation data, stocks of vehicles and fuel prices, summarized in Table 1-3. Chapter Five contains the petroleum product demand data, consumption of petroleum by product, fuel prices and economic activity indicators, summarized in Table 1-4.

Chapter Six contains a bibliography of all the sources used. The bibliography is not an alphabetical listing of sources, but is numbered, the numbers referring to a bibliography code number contained in the comment section of each of the data files. The bibliography code numbers are also those in the tables in Chapters Two, Three, Four and Five.

The tables and indexes of Chapter Seven should help the user understand the data file names and to locate specific variables. The data file names are actually mnemonics for the variables concerned, and these mnemonics are listed alphabetically and defined. There is also an index of terms which refers to the data file names and indicates in which section a particular variable can be found.

The next two chapters deal with some of the issues involved in compiling this database. Chapter Eight contains the fuel conversion factors, defines the units used and discusses a few of the problems encountered. Chapter Nine deals with purchasing power parities, the conversions used to convert currencies to US dollars, and contains tables of the purchasing power parities used.

Chapter Ten provides information for those who may wish to access the data on TROLL, or to otherwise obtain part of this data. Some

information on TROLL data editing is included, with examples of data vectors or files.

The following tables, 1-1 through 1-4 summarize data availability by sector and country. These tables will give the reader an overall viewof the scope of the database and will aid in directing the reader to specific chapters .

Table 1-1

Industrial Sector - Chapter 2

countries: Canada, France, Italy, Japan, Netherlands, Norway, Sweden, United Kingdom, USA, West Germany

data:
- industrial consumption of petroleum, coal, electricity, gas
- industrial prices of petroleum, coal, electricity, gas
- expenditure on fuels
- price of capital
- price of labor
- gross value of output
- value added
- long term interest rate
- asset price indices
  - producer durables
  - non-residential structures
- wages
- purchasing power parities

Table 1-2

Residential Sector - Chapter 3

countries:	Belgium, Canada, France, Italy, Netherlands, Norway, United Kingdon, USA, West Germany
data:	private consumption expenditure on: gas, electricity, petroleum, coal, food, clothing, durables, transportation, other, and indices for all items
	retail prices of electricity, gas, liquid fuel, and coal
	personal disposable income
	population
	temperature
	purchasing power parities

Table 1-3

Transportation Sector - Chapter 4

countries: Austria, Belgium, Canada, Denmark, Finland, France, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom, USA, West Germany

data: stock of vehicles, buses, goods vehicles, passenger cars

new registrations

traffic volume, buses, goods vehicles, passenger cars

consumption of motor gasoline, diesel fuel

percentage of motor gasoline and diesel fuel, used in road vehicles

price of motor gasoline, diesel fuel

taxation of motor gasoline, diesel fuel

Table 1-4

Product Demand Data - Chapter 5

Group I

countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Greece, Ireland, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom, USA, West Germany

data: total consumption of petroleum products: aviation gas, crude, fuel oils, gasoline, jet fuel, kerosene, LPG

prices of some petroleum products

population

temperature

gdp and index

purchasing power parities for some countries

Group II

countries: Argentina, Brazil, India, Mexico, South Africa, Venezuela

data: consumption of petroleum products: aviation gas and motor fuel, fuel oil, jet fuel and kerosene, production of feedstocks

prices of some petroleum products

population

gdp, index

temperature

CHAPTER TWO

Industrial Sector Demand Data

Our industrial sector energy demand data was compiled for the World Oil Project analysis of the industrial sector. It contains historic time series for ten major energy-consuming countries on value added, capital, labor and energy prices, expenditure shares of manufacturing output, and industrial consumption of the four major fuels. Also included in this section of the database are the components used for the construction of the price indices of capital and labor, such as asset price indices, depreciation rates, and gross fixed capital formation. The components of expenditures on capital, labor and energy are also included, as well as nominal prices of fuels, gdp, and gdp deflators.*

This chapter describes the data in the industrial section, and indicates where it was obtained and how indices and shares were constructed. The reasons for choosing certain sources of information will be explained and all data transformation will be described. A few examples of the TROLL data file names for the variables will be given. At the end of this chapter is an alphabetical listing of all of the data file names in the industrial section.

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*All of the data is stored on TROLL, a computer software package which provides an environment for creating, estimating and simulating economic models. TROLL is at the Information Processing Service at MIT. For more information see Chapter 10.

Countries

Ten countries are included in this section of the database: Canada, France, Italy, Japan, the Netherlands, Norway, Sweden, the United Kingdom, the United States and West Germany. All of the variables to be described here are stored for each of these countries.

Variables

Value Added

Data on value added at factor cost was obtained from the United Nations' Growth of World Industry, or the UN Annual Yearbook, for eight of the ten countries. For France and West Germany, however, value added was available only at producer cost. For these two countries value added tax, from the Statistical Office of the European Economic Community (SOEEC) Tax Yearbook, was subtracted from value added at producer cost to obtain factor cost. Value added does not include energy expenditures. These series range from 1960-1973 and are expressed in units of millions of local currency, nominal terms. The data file name for value added is "country"_VA_LC, and for value added tax is "country"_VAT_LC.

Expenditure on Labor

Expenditure on labor has been defined for our purposes to be wages and salaries as well as supplements to wages and salaries, paid to the manufacturing sector. Supplements to wages consist of bonuses, profit sharing, stock options, sick pay, pension plans, holiday pay, health benefits, or other

fringe benefits. As a share of total compensation supplements to wages varies from country to country, but in all cases it is a substantial component and therefore very important to include in total remuneration. Because of complicated benefits packages, however, supplements to wages is a difficult category for which to locate complete information.

For Canada, France, Italy, the Netherlands, Norway and West Germany, wages and supplements to wages were obtained from the UN Growth of World Industry, for the years 1960-1973 or 1974. This publication lacked any information on supplements for some of the other countries, or for some of the years, so in a few cases this was determined by using the percentage of total compensation which was supplemental, according to the International Labor Organization's Statistical Yearbook. The percentage of total compensation which is accounted for by the manufacturing sector was determined from UN National Accounts and ILO Statistics for the United Kingdom and Sweden. Finally, for the US, Japan and France, national statistical yearbooks such as Annuaire Statistique, Japan Economic Yearbook, and the President's Economic Report were used to fill in the missing years for this category.

The data files are stored on TROLL in millions of local currency, in nominal terms. The data is stored both as the components, wages, and supplements, and as total compensation. For example, for France there is a data file for wages, FRAN_WAGS_LC; for supplements, FRAN_WSUP_LC; and total compensation, or expenditure on labor, FRAN_EXPLAB_LC. The expenditures on labor for all countries have also been combined in matrix format, with data file name, EXPLAB_LC. (Chapter Ten contains a complete description of the format of TROLL matrices, their construction and how to read them.)

Expenditures on Capital Services

Expenditures on capital services was determined by subtracting labor expenditures from value added.

expenditures on capital services = value added at factor cost - expenditures on labor

(Figure 2-1)

The available data covers years 1960-1973. The TROLL data file name for this variable is "country"_EXPCAP_LC. All of the ten data files for the ten countries have also been combined in matrix format, with data file name EXPCAP_LC.

Price of Labor

The price of labor is determined implicitly by dividing labor expenditures by total manhours of employees.

$$\frac{\text{price}}{\text{hour}} = \frac{\text{expenditure on labor}}{\text{total manhours of employees}}$$

(Figure 2-2)

Total manhours of employees is not directly available, but can be determined implicitly using the following formula and data from the Growth of World Industry: (next page)

$$\text{total manhours of employees} = \text{manhours operatives} * \frac{\text{number of employees}}{\text{number of operatives}}$$

(Figure 2-3)

Operatives are all employees directly engaged in production, and employees are all persons engaged, other than working proprietors and unpaid workers.[1] The price of labor was derived in this way for Canada, Italy, Japan, Norway, Sweden, the US and West Germany for 1967.

For the remaining countries another method was employed, using the average working hours from the International Labor Organization and the number of employees from the UN:

$$\text{total manhours of employees} = \text{average working hours} * \text{number of employees}$$

(Figure 2-4)

For the United Kingdom, this information was obtained from OECD Labor Statistics.

Having constructed a price/hour for 1967 we then used a wage index, 1967=100, from the US Bureau of Labor Statistics to convert our price/hour for 1967 to a time series, 1960-1974, for every country except Norway. The Bureau of Labor Statistics wage index includes both wages and supplements. The time series for Norway was calculated directly from the data in the Growth of World Industry, using the equation in Figure 1-2. Note that this index is not quality adjusted.

These components for the price of labor are all stored as data files on TROLL except for the US Bureau of Labor Statistics index. The TROLL data file names are, for the number of operatives, "country"_NOP; for the number of employees, "country"_NEMP; for manhours of employees, "country"_MANHOP. The price of labor data file, in local currency, nominal terms, is stored as "country"_PL_LC. There is an additional data file for the price of labor, where the price has been deflated using the 1970 gdp deflator, and converted to US currency using the 1970 gdp purchasing power parity (see Chapter Nine). The file name for the constructed data file is "country"_PL. These individual country data files were combined in a matrix and indexed to US 1970=1. The matrix file name is PL.

Price of Capital Services

We compute a capital service price index separately for non-residential structures (P_{NR}) and producers durables (P_D), and aggregate these two series into a final price of capital services using a Divisia index, where the investment shares of non-residential structures and durables serve as the Divisia weights. The computation of the price of capital services of each component is based on Christensen and Jorgenson,[2] i.e., we assume that the investment price of an asset q is equal to the present value of its future services evaluated at the service price P (which is the price we wish to ascertain).[3] We also assume that the service from an asset declines geometrically over time. Then, disregarding taxes, the asset price is related to the service price by:

$$q_t = \sum_{j=t}^{\infty} \left[(1-d)^{j-t} P_{j+t} \prod_{s=t+1}^{j+1} \frac{1}{1+r_s} \right]$$

(Figure 2-5)

where d is the depreciation rate and r is the appropriate interest rate. From this we can obtain the equations that relate the price index for each type of capital service to the corresponding asset price index:

$$P_{NR}(t) = R(t)q_{NR}(t-1) + d_{NR}q_{NR}(t) - (q_{NR}(t) - q_{NR}(t-1))$$

$$P_{D}(t) = R(t)q_{D}(t-1) + d_{D}q_{D}(t) - (q_{D}(t) - q_{D}(t-1))$$

(Figure 2-6)

Here R is a long-term government bond interest rate and q_{NR} and q_{D} are the asset price indices for non-residential structures and durables.[4]

The data required to compute the price of capital are time series on depreciation rates, interest rates, asset price indices and investment shares. The interest rate used is the long-term government bond yield, from International Financial Statistics, a publication of the IMF. This data covers years 1955-1974. The depreciation rates were taken from those in Christensen, et.al., or from life of capital figures in Denison.[5]

Asset price indices for producer durables and non-residential structures for Canada, France, Italy, the Netherlands, the United Kingdom and the USA were obtained from Christensen, et.al. Asset price indices for the remaining countries were derived implicitly using gross fixed capital formation for producer durables and non-residential structures in current and constant terms, as available in the UN or OECD National Accounts, or the national statistical yearbooks. The asset price indices were converted to 1970 terms, relative to the US, using purchasing power parities.

The investment shares of producer durables and non-residential structures used to compute the Divisia index were derived from gross fixed capital formation for those categories, obtained for all countries from UN or OECD National Accounts or national statistical yearbooks. For some years gross fixed capital formation from these sources is not completely disaggregated. In these cases the data points were derived from the aggregate figures by assuming a certain percentage based on the historical ratios of the separate categories to the totals.

Our price index for capital services must be viewed as approximate for several reasons, one of which is that differences in corporate tax structures are not taken into account. The price of capital was computed for each country and each year, and then combined into one data file for each country, covering years 1955-1973, but because the price is approximate, for some years the computed values are negative for some countries in some years. In these cases, Japan, Sweden, and West Germany in 1960, a new value was calculated by averaging the observations for 1959, 1960 and 1961 and using that new value for 1960.

All of the price of capital data series were then indexed, relative to US 1970=1. The data series for each country were also combined in matrix format, so there are both individual country data files for PK and a matrix. The TROLL file names for the individual data files are "country"_PK, and for the matrix, simply PK.

Expenditure on Fuels

Industrial expenditure on fuels was determined using data on consumption of fuels in tcals and price/tcal for the four major fuels.

expenditure on fuels = quantity consumed * price

(Figure 2-7)

The expenditure figures are in millions of local currency, expressed in nominal or undeflated terms. The data is stored both as individual country data files, "country"_EXPFUEL_LC, and as combined data files in matrix format, EXPFUEL_LC. Below is a discussion of the quantities and prices used to compute the expenditures on fuel.

Fuel Quantities

Quantities of four fuels used in the industrial sector (which excludes energy conversion), coal, gas, electricity, and petroleum were all obtained from OECD publications. Two different publications were used, Energy Balances of OECD Countries: 1960-1974 (Paris, 1976), which reports the data in net tons of oil equivalent, and Energy Statistics, which reports the data in metric tons or tcals. The 1976 publication was used for 1960-1974 because it contains recent, revised data. These data series were related to those in the earlier OECD publications via simple linear regressions. These regressions were used to extrapolate the OECD 1960-1974 series back to 1955. The units were then converted to net tcals. (For a definition of net tcals, see Chapter Eight.)

The US was treated differently from the other countries in that the 1976 publication showed a large amount of "crude oil and ngl" consumed by industry. Investigation of other publications and consultations with the

OECD and the International Studies division of the FEA have led us to conclude that this category probably erroneously contains some petroleum products used for petroleum feedstocks, non-petroleum hydrocarbons, and refinery gas. To keep our accounting consistent with other countries, this category was not included in our industrial petroleum total for the US. Some examples of TROLL data file names for industrial fuel consumption are: "country"_FINDPRFO (for fuel oil), "country"_FINDGAS (for gas). For a complete list of the data file names see Table 2-2 at the end of this chapter.

Fuel Prices

Industrial prices of heavy fuel oil, natural gas, coal and electicity were obtained from SOEEC publications, the FEA, and the Edison Electric Institute. The prices were originally in the form of local currency/volumetric unit or heat unit, and were converted to local currency/tcal (using the conversion factors in Chapter 8). The prices cover the years 1955-1974. Examples of the TROLL data file names for prices are: FRAN_SINDPRFO_LC (for fuel oil), FRAN_SINDGAS_LC (for gas). All of the data file names in the industrial section are listed alphabetically in Table 2-2 at the end of this chapter.

Price of Energy

An average "price of energy" was calculated from a translog price aggregator.[6] It is therefore not an explicit part of the database but rather a product of one of the econometric models. GDP deflators and purchasing power parities are part of the database, and are used to deflate

and convert the fuel prices to a standard unit, 1970 US dollars. For a discussion of purchasing power parities, see Chapter Nine.

Net Value of Output

Net value of output is defined here as value added at factor cost plus expenditure on fuel. This was calculated on TROLL with our matrices for value added and expenditure on fuel. There is therefore no individual country data file for net value of output but only a matrix containing all of the countries, with file name NVO_LC.

Expenditure Shares

Expenditures on fuel, labor and capital as a fraction of net value of output were calculated.

$$\text{share of labor} = \frac{\text{expenditure on labor}}{\text{net value of output}}$$

(Figure 2-8)

There are no individual country data files for the shares, but as with net value of output, this data is stored in matrix format, containing all of the countries. The data file names for the shares are SHARE_CAP, SHARE_ENG, and SHARE_LAB.

Fuel Shares

The share of each fuel as a fraction of total industrial fuel consumption was calculated for oil, gas, coal and electricity consumed in the industrial sector.

$$\text{share of coal} = \frac{\text{industrial coal consumption}}{\text{total industrial fuels consumption}}$$

(Figure 2-9)

The data series on fuel shares are stored both as individial country data files covering years 1955-1974, and in a matrix containing all years, all countries, named SH_FINDELEC, SH_FINDGAS, etc.

Deflators

A gdp price deflator was collected for every country. They were obtained from Christensen, et al., or from OECD National Accounts. All gdp deflators cover years 1950-1974, with 1970 = 100. These data files are stored with data file name, "country"_IPRIC_GDP.

Purchasing Power Parities

Purchasing power parities were used to convert different currencies into US dollars. Chapter Nine contains a discussion of why purchasing power parities were used and how they were derived. Tables of PPP's used are also included.

Tables

Examples of data file names which are also mnemonics for the variables have been included in the above text. The following table, Table 2-1, is an alphabetical listing of all of the data file names in this section of the database. Note that all of the industrial data files are stored in the section or archive "ind". This means that all data file names are preceded by the letters "ind". For an index of terms and data file names and an explanation of TROLL naming conventions see Chapter Seven.

Included in the following table is information on the range of years for each file, the units, the definition, and a bibliography code number which refers to the bibliography in Chapter Six.

References

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2. Christensen, L.R., and D.W. Jorgenson, "The Measurement of U.S. Real Capital Input, 1929-1967," Review of Income and Wealth, Series 15, 1969, pp. 293-320.

3. Denny, M., and M. Fuss, "The Use of Approximation Analysis to Test for Separability and the Existence of Consistent Aggregates," Working Paper No. 7506, Institute for the Quantitative Analysis of Social and Economic Policy, University of Toronto, August 1975.

4. Diewert, W.E., "An Application of the Shepard Duality Theorem: A Generalized Leontief Production Function," Journal of Politcal Economy, Vol. 79, No. 3, May 1971.

5. Denison, E.F., Why Growth Rates Differ, The Brookings Institution, Washington, 1967.

6. Pindyck, R.S., "Interfuel Substitution and the Industrial Demand for Energy: An International Comparison," Working Paper No. MIT EL 77-026WP, MIT Energy Laboratory, August, 1977.

LE 2-1

E E	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
A_	IND_	CAN_	ALLFUELS	total fuel consumed by industry	1959-74	tcals	constructed 123
			DNR	depreciation of non-residential structures	50-74		
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	58-73	mnCan$	constructed
			EXPFUEL_ LC	total expenditure on fuels	59-74	mnCan$	constructed
			EXPLAB_ LC	expenditure on labor	58-74	mnCan$	54
				industrial consumption of:			
			FINDELEC	electricity	59-74	tcals	123
			FINDFPET	petroleum products	59-74	tcals	123
			FINDFSOL	solid fuel	59-74	tcals	123
			FINDGAS	gas	59-74	tcals	123
				asset price index:			
			IASPRIC_ NR	non-residential structures	50-74	1970=100	100,57
			PD	producer durables	50-74	1970=100	100,57
			IPRIC__ GDP	price index,gdp	50-74	1970=100	100,32
			MANHOP	manhours worked by operatives	63-73	thousands	54

ABLE 2-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
ATA_	IND_	CAN_	ME_	LC	gross fixed capital, machinery and equipment	50-68	mnCan$	32
			NEMP		number of employees	58-73	thousands	54
			NOP		number of operatives	63-73	thousands	54
					gross fixed capital formation:			
			NR_	LC	non-residential structures	53-74	mnCan$	32,57
			OC_	LC	other construction	50-68	mnCan$	32
			OEQ_	LC	other machinery and equipment	53-74	mnCan$	32,57
			PK		price of capital	55-73	US1970=1	constructed
			PL		price of labor	60-74	1970US$	constructed
			PL_	LC	price of labor	60-74	Can$/hour	54,67,250
					price of:			
			PNR		non-residential structures	52-74		constructed
			PPD		producer durables	52-74		constructed
			QNR		(intermediate stage, PK component)			
			QPD		(intermediate stage, PK component)			
			R		government bond yield	50-74	interest rate	13

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	CAN_	SH_ AINR	(intermediate stage, PK component)			
			AIPD	(intermediate stage, PK component)			
				share of total fuel consumption:			
			FINDELEC	electricity	1959-74	% of total	constructed, 123
			FINDFPET	petroleum products	59-74	% of total	constructed, 123
			FINDFSOL	solid fuel	59-74	% of total	constructed, 123
			FINDGAS	gas	59-74	% of total	constructed, 123
				share of:			
			INR	non-residential structures	53-74	% of total	constructed
			IPD	producer durables	53-74	% of total	constructed
			TRANEQ_ LC	gross fixed capital formation, transportation equipment	61-73	mnCan$	32
				purchasing power parity:			
			U_ PPPGDP	gdp	50-74	1970Can$/US$	111
			PPPNR	non-residential structures	50-74	1970Can$/US$	111
			PPPPD	producer durables	50-74	1970Can$/US$	111
			VA_ LC	value added	58-73	mnCan$	54
			WAGS_ LC	wages and salaries of employees, all industries	58-73	mnCan$	54

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	CAN_	WSUP _ LC	supplements to wages and salaries	1963,66-73	mnCan$	54
			EXPCAP_ LC	expenditure on capital, matrix form, all countries	58-73	mn local currency	constructed
			EXPENG_ LC	expenditure on energy, matrix form, all countries	55-74	mn local currency	constructed
			EXPFUEL_ LC	expenditure on fuel, matrix form, all countries	55-74	mn local currency	constructed
			EXPLAB_ LC	expenditure on labor, matrix form, all countries	58-73 or 74	mn local currency	constructed
		FRAN_	ALLFUELS	total fuel consumed by industry	55-74	tcals	constructed, 123
			DNR	depreciation of non-residential structures			
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	63-73	mnFfr	constructed
			EXPFUEL_ LC	total expenditure on fuels	55-74	mnFfr	constructed
			EXPLAB_ LC	expenditure on labor	60-73	mnFfr	57
				industrial consumption of:			
			FINDELEC	electricity	55-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuel	55-74	tcals	123

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	FRAN_	FINDGAS	gas	55-74	tcals	123
				asset price index:			
			IASPRIC_ NR	non-residential structures	50-74	1970=100	100,57
			PD	producer durables	50-74	1970=100	100,57
			IPRIC_ GDP	price index, gdp	50-74	1970=100	100,32
			ME_ LC	gross fixed capital formation, machinery and equipment	50-70	mnFfr	32
			NEMP	number of employees	63-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	52-74	bnFfr	32,57
			OC_ LC	other construction	50-70	mnFfr	32
			OEQ_ LC	other machinery and	52-74	bnFfr	32,57
			PK	price of capital	55-73	US1970=1	constructed
			PL	price of labor	62-73	US1970=1	constructed
			PL_ LC	price of labor	62-73	Ffr/hour	constructed, 54,251
				price of:			
			PNR	non-residential structures	52-74		constructed
			PPD	producer durables	52-74		constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	FRAN_	QNR	(intermediate stage, PK component)			
			QPD	(intermediate stage, PK component)			
			R	government bond yield (long term)	1950-74	interest rate	13
			SH_ AINR	(intermediate stage, PK component)			
			AIPD	(intermediate stage, PK component)			
				share of total fuel consumption:			
			FINDELEC	electricity	55-74	% of total	constructed, 123
			FINDFPET	petroleum	55-74	% of total	constructed, 123
			FINDFSOL	solid fuel	55-74	% of total	constructed, 123
			FINDGAS	gas	55-74	% of total	constructed 123
				share of:			
			INR	non-residential structures	52-74	% of total	constructed
			IPD	producer durables	52-74	% of total	constructed
				share of industrial expenditures:			
			SHARE_ CAP	capital	63-73	% of total	constructed
			FUEL	fuel	63-73	% of total	constructed
			LAB	labor	63-73	% of total	constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	FRAN_	TRANEQ_ LC	gross fixed capital formation, transportation equipment	61-64, 66-72	mnFfr	32
			U_	purchasing power parity:			
			PPPGDP	gdp	50-74	1970Ffr/US$	111
			PPPGNP	gnp	50-74	1970Ffr/US$	111
			PPPNR	non-residential structures	50-74	1970Ffr/US$	111
			PPPPD	producer durables	50-74	1970Ffr/US$	111
			VA_ LC	value added	63-73	mnFfr	constructed, 54
			VAT_ LC	value added tax	58-74	mnFfr	SOEEC
			WAGSF_ LC	compensation of employees	58-73	bnFfr	57
		ITAL_	ALLFUELS	total expenditure on fuels	55-74	tcals	constructed
			DNR	depreciation of non-residential structures			
			DPD	depreciation of producer durables			
			EXPCAP_ LC	expenditure on capital	61-73	mnLira	constructed
			EXPFUEL_ LC	total expenditure on fuels	55-74	mnLira	constructed
			EXPLAB_ LC	expenditure on labor	61-73	mnLira	54,57

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	ITAL_		industrial consumption of:			
			FINDELEC	electricity	1955-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuel	55-74	tcals	123
			FINDGAS	gas	55-74	tcals	123
				asset price index:			
			IASPRIC_ NR	non-residential structures	52-74	1970=100	100,57
			PD	producer durables	52-74	1970=100	100,57
			IPRIC_ GDP	price index, gdp	52-74	1970=100	100,32
			MANHOP	manhours of operatives	67-71	millions	54
			NEMP	number of employees	51,67-71	thousands	54
			NONRES_ Y63	gross fixed capital formation, non-residential structures	61-73	mn1963Lira	54,32
			NOP	number of operatives	67-71	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	52-74	bnLira	32
			OEQ_ LC	other machinery and equipment	52-74	bnLira	57

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	ITAL_	PK		price of capital	1955-73	US1970=1	constructed
			PL		price of labor	60-73	US1970=1	
			PL_	LC	price of labor	60-73	Lira/hour	54,67,251
					price of:			
			PNR		non-residential structures	53-74		constructed
			PPD		producer durables	53-74		constructed
			R		government bond yield	50-74	interest rate	13
			SH_		share of total fuel consumption:			
				FINDELEC	electricity	55-74	% of total	constructed, 123
				FINDFPET	petroleum products	55-74	% of total	constructed, 123
				FINDFSOL	solid fuel	55-74	% of total	constructed, 123
				FINDGAS	gas	55-74	% of total	constructed, 123
					share of:			
				INR	non-residential structures	52-74	% of total	constructed
				IPD	producer durables	52-74	% of total	constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	ITAL_	SHARE_	share of industrial expenditures:			
			CAP	capital	1961-73	% of total	constructed
			FUEL	fuel	58-73	% of total	constructed
			LAB	labor	61-73	% of total	constructed
			U_	purchasing power parity:			
			PPPGDP	gdp	50-74	1970Lira/US$	111
			PPPGNP	gnp	50-74	1970Lira/US$	111
			PPPNR	non-residential structures	50-74	1970Lira/US$	111
			PPPPD	producer durables	50-74	1970Lira/US$	111
			VA_ LC	value added	53,58-73	mnLira	54
			WAGS_ LC	wages and salaries of employees	51,67-71	mnLira	54
			WSUP_ LC	supplements to wages and salaries	67-71	mnLira	54
		JAP_	ALLFUELS	total fuel consumed by industry	55-74	tcals	123
			DNR	depreciation of non-residential structures	50-74		internal
			DPD	depreciation of producer durables	50-74		internal

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	JAP_		gross national expenditure by:			
			EGDWEL	government on dwellings	1952-74	bnYen	16
			EGOTH	government on other	52-74	bnYen	16
				gross national expenditure by:			
			EGOV	government	52-74	bnYen	16
			EPDWEL	on: private dwelling	52-74	bnYen	16
			EPOTH	private other	52-74	bnYen	16
			EPRIV	total, private	52-74	bnYen	16
			EXPCAP_ LC	expenditure on capital	58-73	mnYen	constructed
			EXPFUEL_ LC	total expenditure on fuels	55-74	Yen	constructed
			EXPLAB_ LC	expenditure on labor	58-74	mnYen	54,251
				industrial consumption of:			
			FINDELEC	electricity	55-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuel	55-74	tcals	123
			FINDGAS	gas	55-74	tcals	123
			FRACTGDW_ DW	(intermediate stage, construction iaspric_nr)			

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	JAP_	FRACTGO_	O	(intermediate stage, construction iaspric_nr)			
			FRACTPDW_	DW	(intermediate stage, construction iaspric_pd)			
			FRACTPO_	O	(intermediate stage, construction iaspric_pd)			
			GOV_	NR	(intermediate stage, construction iaspric_nr)			
				PD	(intermediate stage, construction iaspric_pd)			
					asset price index:			
			IASPRIC_	NR	non-residential structures	1952-74	1970=100	constructed, 16
				PD	producer durables	52-74	1970=100	constructed, 16
			IGOV_	NR	deflator for government dwellings	51-74	1970=100	16
				PD	deflator for producer durables	51-74	1970=100	16
			IPRIC_	GDP	price index, gdp	52-74	1970=100	102,32
			IPRIV_	NR	deflator for private dwellings	51-74	1970=100	16
				PD	deflator for producer durables	51-74	1970=100	16
					gross fixed capital formation:			
			NR_	LC	non-residential structures	61-72	mnYen	32
			OEQ_	LC	other equipment	52-68	mnYen	32

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	JAP_	PK		price of capital	1955-73	US1970=1	constructed
			PL		price of labor	60-73	US1970=1	constructed
			PL_	LC	price of labor	60-74	Yen/hour	54,250,251
			PNR		price of non-residential structures	53-74		constructed
			PPD		price of producer durables	53-74		constructed
			QNR		(intermediate stage, PK component)			
			QPD		(intermediate stage, PK component)			
			R		discount rate 52-68, government bond yield, 69-74	52-74	interest rate	13
			SH_	AINR	(intermediate stage, PK component)			
				AIPD	(intermediate stage, PK component)			
					industrial consumption, share of:			
				FINDELEC	electricity	55-74	% of total	constructed, 123
				FINDFPET	petroleum products	55-74	% of total	constructed, 123
				FINDFSOL	solid fuel	55-74	% of total	constructed, 123
				FINDGAS	gas	55-74	% of total	constructed, 123
					share of:			
				INR	non-residential structures	52-74	% of total	constructed, 123
				IPD	producer durables	52-74	% of total	constructed, 123

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	JAP_	U_	purchasing power parity:			
			PPPGDP	gdp	1950-74	1970Yen/US$	111
			PPPNR	non-residential structures	50-74	1970Yen/US$	111
			PPPPD	producer durables	50-74	1970Yen/US$	111
			VA_ LC	value added	53,58-73	mnYen	54
			WAGS_ LC	wages and salaries of employees, all industries	58-72	bnYen	54
		NETH_	ALLFUELS	total fuel consumed by industry	55-74	tcals	constructed, 123
			DNR	depreciation of non-residential structures	50-74		
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	58-73	mnDGuild	constructed
			EXPFUEL_ LC	total expenditure on fuels	58-73	DGuild	constructed
			EXPLAB_ LC	expenditure on labor	58-74	mnDGuild	54
				industrial consumption of:			
			FINDELEC	electricity	55-74	tcals	37,123
			FINDFPET	petroleum	55-74	tcals	37,123
			FINDFSOL	solid fuel	55-74	tcals	37,123
			FINDGAS	gas	55-74	tcals	37,123

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	NETH_		asset price index:			
			IASPRIC_ NR	non-residential structures	1950-74	1970=100	57,100
			PD	producer durables	50-74	1970=100	57,100
			IPRIC_ GDP	price index, gdp	51-74	1970=100	32,100
			NEMP_	number of employees	58-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	54-74	mnGuilders	32,57
			OC_ LC	other construction	50-70	mnGuilders	32
			OEQ_ LC	other machinery and equipment	53-74	mnGuilders	32,57
			PK	price of capital	55-73	US1970=1	constructed
			PL	price of labor	60-73	US1970=1	constructed
			PL_ LC	price of labor	60-73	Guilder/hour	54,251
				price of:			
			PNR	non-residential structures	52-74		constructed
			PPD	producer durables	52-74		constructed
			QNR	(intermediate stage, PK component)			
			QPD	(intermediate stage, PK component)			
			R	government bond yield	52-74	interest rate	13

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	NETH_	SH_	AINR	(intermediate stage, PK component)			
				AIPD	(intermediate stage, PK component)			
					share of total fuel consumption:			
				FINDELEC	electricity	1955-74	% of total	constructed, 123
				FINDFPET	petroleum products	55-74	% of total	constructed, 123
				FINDFSOL	solid fuel	55-74	% of total	constructed, 123
				FINDGAS	gas	55-74	% of total	constructed, 123
					share of:			
				INR	non-residential structures	53-74	% of total	constructed
				IPD	producer durables	53-74	% of total	constructed
			U_		purchasing power parity:			
				PPPGDP	gdp		1970Guilder/ US$	111
				PPPGNP	gnp		1970Guilder/ US$	111
				PPPNR	non-residential structures		1970Guilder/ US$	111
				PPPPD	producer durables		1970Guilder/ US$	111
			VA_	LC	value added	53,58-73	mnGuilder	54

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	NETH_	WAGS_	LC	wages and salaries of employees	1958-72	mnGuilders	54
			WSUP_	LC	supplements to wages and salaries	63-72	mnGuilders	54
		NOR_	ALLFUELS		total fuel consumed by industry	55-74	tcals	123
			DNR		depreciation of non-residential structures	50-74		
			DPD		depreciation of producer durables	50-74		
			EXPCAP_	LC	expenditure on capital	58-73	mnKr	constructed
			EXPFUEL_	LC	total expenditure on fuels	55-74	Kroner	constructed
			EXPLAB_	LC	expenditure on labor	58-74	mnKr	32,54,250
					industrial consumption of:			
			FINDELEC		electricity	55-74	tcals	123
			FINDFPET		petroleum products	55-74	tcals	123
			FINDFSOL		solid fuel	55-74	tcals	123
			FINDGAS		gas	55-74	tcals	123
					asset price index:			
			IASPRIC_	NR	non-residential structures	53-74	1970=100	57
				PD	producer durables	55-74	1970=100	57
			IPRIC_	GDP	price index, gdp	51-74	1970=100	32,57

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	NOR_	MANHOP	manhours worked by operatives	1963-73	mn	54
			ME_ LC	gross fixed capital, machinery and equipment	51-70	mnKr	32
			NEMP	number of employees	58-73	thousands	54
			NOP	number of operatives	63-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	53-74	mnKr	57
			LC_Y58	non-residential structures	56-58	mn58Kr	57
			Y63	non-residential structures	55-71	mn63Kr	57
			OC_ LC	other construction	51-70	mnKr	32
			OEQ_ LC	other machinery and equipment	53-74	mnKr	57
			LC_Y58	other machinery and equipment	56-59	mn58Kr	57
			Y63	other machinery and equipment	58-71	mn63Kr	57
			PK	price of capital	56-73	1970US=1	constructed
			PL	price of labor	58-73	1970US=1	constructed
			PL_ LC	price of labor	58-73	Kroner/hour	32,54,1

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	NOR_		price of:			
			PNR	non-residential structures	1957-74		constructed
			PPD	producer durables	56-74		constructed
			QNR	(intermediate stage, PK component)			
			QPD	(intermediate stage, PK component)			
			R	government bond yield	52-74	interest rate	13
			SH_ AINR	(intermediate stage, PK component)			
			AIPD	(intermediate stage, PK component)			
				share of total fuel consumption:			
			FINDELEC	electricity	55-74	% of total	constructed, 123
			FINDFPET	petroleum products	55-74	% of total	constructed, 123
			FINDFSOL	solid fuel	55-74	% of total	constructed, 123
			FINDGAS	gas	55-74	% of total	constructed, 123
				share of:			
			INR	non-residential structures	53-74	% of total	constructed
			IPD	producer durables	53-74	% of total	constructed
			TRANEQ_ LC	gross fixed capital formation, transportation equipment	68-73	mnKr	32

ABLE 2-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
ATA_	IND_	NOR_	U_		purchasing power parity:			
				PPPGDP	gdp	1950-74	1970Kr/US$	111
				PPPGNP	gnp	50-74	1970Kr/US$	111
				PPPNR	non-residential structures	50-74	1970Kr/US$	111
				PPPPD	producer durables	50-74	1970Kr/US$	111
			VA_	LC	value added	58-73	mnKr	54
			WAGS_	LC	wages and salaries of employees	58-73	mnKr	54
			WSUP_	LC	supplements to wages and salaries	63-73	mnKr	54
			NVO_	LC	net value of output, matrix format	58-73	local currency	constructed
			PK_		price of capital, matrix format	60-73	1970US=1	constructed
			PL		price of labor, matrix format	60-73	1970US=1	constructed
			SH_		share of total fuel, matrix format:			
				FINDELEC	electricity	55-74	% of total	constructed
				FINDFPET	petroleum products	55-74	% of total	constructed
				FINDFSOL	solid fuel	55-74	% of total	constructed
				FINDGAS	gas	55-74	% of total	constructed

\BLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	NOR_	SHARE_	share of net value of output, matrix format:			
			CAP	capital	1960-73	% of total	constructed
			ENG	energy	60-73	% of total	constructed
			LAB	labor	60-73	% of total	constructed
		SWED_	ALLFUELS	total fuel consumed by industry	55-74	tcals	constructed, 123
			DNR	depreciation of non-residential structures	50-74		
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	60-73	Kr	constructed
			EXPFUEL_ LC	total expenditure on fuels	55-74	Kr	constructed
			EXPLAB_ LC	expenditure on labor	60-74	mnKr	32,250
				industrial consumption of:			
			FINDELEC	electricity	55-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuel	55-74	tcals	123
			FINDGAS	gas	55-74	tcals	123

ABLE 2-1

ILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
ATA_	IND_	SWED_		asset price index:			
			IASPRIC_ NR	non-residential structures	1955-74	1970=100	57
			PD	producer durables	55-74	1970=100	57
			IPRIC_ GDP	price index, gdp	51-74	1970=100	32,57
			MANHOP	manhours worked by operatives	63-73	mn	54
			ME_ LC	gross fixed capital machinery	50-68	mnKr	32
			NEMP	number of employees	63-73	thousands	54
			NOP	number of operatives	63-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	53-74	mnKr	57
			LC_Y54	non-residential structures	56,57	mn54Kr	57
			Y59	non-residential structures	55-67	mn59Kr	57
			Y68	non-residential structures	55-71	mn68Kr	57
			2		53-72	mnKr	57
			OC_ LC	other construction	53-68	mnKr	32
			OEQ_ LC	other machinery and equipment	53-74	mnKr	57
			LC_Y54	other machinery and equipment	56,57	mn54Kr	57

ABLE 2-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
)ATA_	IND_	SWED_	OEQ_	LC_Y59	other machinery and equipment	1955-68	mn59Kr	57
				Y68	other machinery and equipment	55-71	mn68Kr	57
				2		55-72	bnKr	57
			PK		price of capital	58-73	US1970=1	constructed
			PL		price of labor	60-74	US1970=1	constructed
			PL_	LC	price of labor	60-74	Kr/hour	32,250
			PNR		price of non-residential structures	58-74		constructed
			PPD		price of producer durables	58-74		constructed
			QNR		(intermediate stage, PK component)			
			QPD		(intermediate stage, PK component)			
			R		government bond yield	52-74	interest rate	13
			SH_	AINR	(intermediate stage PK component)			
				AIPD	(intermediate stage, PK component)			
					share of total fuel consumption:			
				FINDELEC	electricity	55-74	% of total	constructed
				FINDFPET	petroleum products	55-74	% of total	constructed
				FINDFSOL	solid fuel	55-74	% of total	constructed
				FINDGAS	gas	55-74	% of total	constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	SWED_	SH_	share of:			
			INR	non-residential structures	1953-74	% of total	constructed
			IPD	producer durables	53-74	% of total	constructed
			TRANEQ_ LC	gross fixed capital formation, transportation equipment	61-72	mnKr	32
			U_	purchasing power parity:			
			PPPGDP	gdp	50-74	1970Kr/US$	111
			PPPNR	non-residential structures	50-74	1970Kr/US$	111
			PPPPD	producer durables	50-74	1970Kr/US$	111
			VA_ LC	value added	53,58, 60-73	mnKr	54
			WAGS_ LC	wages and salaries of employees	63-73	mnKr	54
		UK_	ALLFUELS	total fuel consumed by industry	55-74	tcals	123
			DNR	depreciation of non-residential structures	50-74		
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	63-73	mnPounds	constructed
			EXPFUEL_ LC	total expenditure on fuels	55-74	Pounds	constructed
			EXPLAB_ LC	expenditure on labor	60-74	mnPounds	54,251

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	UK_		industrial consumption of:			
			FINDELEC	electricity	1955-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuel	55-74	tcals	123
			FINDGAS	gas	55-74	tcals	123
				asset price index:			
			IASPRIC_ NR	non-residential structures	55-74	1970=100	57,100
			PD	producer durables	55-74	1970=100	57,100
			IPRIC_ GDP	price index, gdp	55-74	1970=100	32
			ME_ LC	gross fixed capital, machinery and equipment	50-68	mnPounds	32
			NEMP	number of employees	63-73	thousands	54
			NOP	number of operatives	63,68, 70-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	53-74	mnPounds	57
			LC_Y70	non-residential structures	63,65, 70-74	mn70Pounds	57

ABLE 2-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
ATA_	IND_	UK_	OEQ_	LC	other machinery and equipment	53-74	mnPounds	57
				LC_Y70	other machinery and equipment	63,65-74	mn70Pounds	57
			PK		price of capital	56-73	USA1970=1	constructed
			PL		price of labor	60-74	USA1970=1	constructed
			PL_	LC	price of labor	60-74	Pounds/hour	54
					price of:			
			PNR		non-residential structures	56-74		constructed
			PPD		producer durables	56-74		constructed
			QNR		(intermediate stage, PK component)			
			QPD		(intermediate stage, PK component)			
			R		government bond yield	52-74	interest rate	13
			SH_	AINR	(intermediate stage, PK component)			
				AIPD	(intermediate stage, PK component)			
					share of total fuel consumption:			
				FINDELEC	electricity	55-74	% of total	constructed, 123
				FINDFPET	petroleum products	55-74	% of total	constructed, 123
				FINDFSOL	solid fuel	55-74	% of total	constructed, 123
				FINDGAS	gas	55-74	% of total	constructed, 123

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	UK_	SH_	share of:			
			INR	non-residential structures	1953-74	% of total	constructed
			IPD	producer durables	53-74	% of total	constructed
			TRANEQ_ LC	gross fixed capital formation, transportation equipment	60-72	mnPounds	32
			U_	purchasing power parity:			
			PPPGDP	gdp	50-74	1970Pounds/US$	111
			PPPGNP	gnp	50-74	1970Pounds/US$	111
			PPPNR	non-residential structures	50-74	1970Pounds/US$	111
			PPPPD	producer durables	50-74	1970Pounds/US$	111
			VA_ LC	value added	58,63-73	mnPounds	57
			WAGS_ LC	wages and salaries of employees	63-73	mnPounds	54
			WSUP_ LC	supplements to wages and salaries	67-70	mnPounds	54
		USA_	ALLFUELS	total fuel consumed by industry	55-74	tcals	constructed, 123
			DNR	depreciation of non-residential structures	50-74		
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	58-73	mnUS$	constructed
			EXPFUEL_ LC	total expenditure on fuels	59-74	mnUS$	constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	USA_	EXPLAB_ LC	expenditure on labor	1958-73	mnUS$	54
				industrial consumption of:			
			FINDELEC	electricity	55-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuels	55-74	tcals	123
			FINDGAS	gas	55-74	tcals	123
			FINDPCRU	crude oil	55-74	tcals	123
				asset price index:			
			IASPRIC_ NR	non-residential structures	56-73	1970=1	
			PD	producer durables	50-73	1970=1	
			IPRIC_ GDP	price index, gdp	50-74	1970=100	32,60
			GNP_Y72		50-75	1972=100	32,60
			ME_ LC	gross fixed capital, machinery	60-68	mnUS$	32
			NEMP	number of employees	58-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	52-73	mnUS$	57
			OC_ LC	other construction	50-68	mnUS$	32
			OEQ_ LC	other machinery and equipment	52-73	mnUS$	32

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	USA_	PK		price of capital	1955-73	1970=1	constructed
			PL		price of labor	60-74	1970=1	constructed
			PL_	LC	price of labor	60-74	US$/hour	50, ,251
					price of:			
			PNR		non-residential structures	52-73		constructed
			PPD		producer durables			
			QNR		(intermediate stage, PK component)			
			QPD		(intermediate stage, PK component)			
			R		government bond yield	52-74	interest rate	13
			SH_	AINR	(intermediate stage, PK component)			
				AIPD	(intermediate stage, PK component)			
					share of total fuel consumption:			
				FINDELEC	electricity	55-74	% of total	constructed
				FINDFPET	petroleum products	55-74	% of total	constructed
				FINDFSOL	solid fuel	55-74	% of total	constructed
				FINDGAS	gas	55-74	% of total	constructed
					share of:			
				INR	non-residential structures	52-73	% of total	constructed
				IPD	producer durables	52-73	% of total	constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
				industrial price of:			
DATA_	IND_	USA_	SINDCOAL_ LC	coal	54-57, 62-74	US$/tcal	64
			SINDELEC_ LC	electricity	56-75	US$/tcal	64
			SINDGAS_ LC	gas	54-57, 62-74	US$/tcal	64
			SINDPRBC_ LC	Bunker "C"	54-57, 62-74	US$/tcal	64
			TOTWAG	total wages and salaries	58-74	bnUS$	
			TRANEQ_ LC	gross fixed capital formation, transportation equipment	61-72	mnUS$	32
			TWSUP	total supplements to wages and salaries	58-74	bnUS$	
			U_	purchasing power parity:			
			PPPGDP	gdp	50-74	US$/US$	111
			PPPNR	non-residential structures	50-74	US$/US$	111
			PPPPD	producer durables	50-74	US$/US$	111
			VA_ LC	value added	53,58-73	mnUS$	54
			WAGS_ LC	wages and salaries of employees	58-73	bnUS$	54
			WSRATIO		58-74		constructed
			VA_ LC	value added, matrix format	58-74	local currency	constructed

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	WGER_	ALLFUELS	total fuel consumed by industry	1955-74	tcals	123
			DNR	depreciation of non-residential structures	50-74		
			DPD	depreciation of producer durables	50-74		
			EXPCAP_ LC	expenditure on capital	60-73	mnDM	constructed
			EXFUEL_ LC	total expenditure on fuels	55-74	mnDM	constructed
			EXPLAB_ LC	expenditure on labor	60-73	mnDM	54,57
				industrial consumption of:			
			FINDELEC	electricity	55-74	tcals	123
			FINDFPET	petroleum products	55-74	tcals	123
			FINDFSOL	solid fuel	55-74	tcals	123
			FINDGAS	gas	55-74	tcals	123
				asset price index:			
			IASPRIC_ NR	non-residential structures	55-74	1970=100	57,100
			PD	producer durables	55-74	1970=100	57,100
			IPRIC_ GDP	price index, gdp	51-74	1970=100	57,100
			MANHOP	manhours worked by operatives	63-73	mn	54
			ME_ LC	gross fixed capital, machinery and equipment	50-68	mnDM	32

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	WGER_	NEMP	number of employees	1963-73	thousands	54
			NOP	number of operatives	63-73	thousands	54
				gross fixed capital formation:			
			NR_ LC	non-residential structures	55-74	mnDM	57
			LC_Y54	non-residential structures	55-60	mn54DM	57
			Y63	non-residential structures	55-71	mn63DM	57
			OC_ LC	other construction	50-68	mnDM	32
			OEQ_ LC	other machinery and equipment	55-74	bnDM	57
			LC_Y54	other machinery and equipment	53-59	bn54DM	57
			Y63	other machinery and equipment	60,63, 65-74	bn63DM	57
			PK	price of capital	58-73	US1970=1	constructed
			PL	price of labor	60-74	US1970=1	constructed
			PL_ LC	price of labor	60-74	DM/hour	constructed
				price of:			
			PNR	non-residential structures	56-74		constructed
			PPD	producer durables	56-74		constructed
			QNR	(intermediate stage, PK component)			
			QPD	(intermediate stage, PK component)			

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	WGER_	R	discount rate	1952-74	interest rate	13
			SH_ AINR	(intermediate stage, PK component)			
			AIPD	(intermediate stage, PK component)			
				share of total fuel consumption:			
			FINDELEC	electricity	55-74	% of total	constructed, 123
			FINDFPET	petroleum products	55-74	% of total	constructed, 123
			FINDFSOL	solid fuel	55-74	% of total	constructed, 123
			FINDGAS	gas	55-74	% of total	constructed, 123
				share of:			
			INR	non-residential structures	55-74	% of total	constructed
			IPD	producer durables	55-74	% of total	constructed
			SHARE_	share of:			
			CAP	industrial expenditure, capital	60-73	% of total	constructed
			FUEL	industrial expenditure, fuel	58-73	% of total	constructed
			LAB	industrial expenditure, labor	60-73	% of total	constructed
			TRANEQ_ LC	gross fixed capital formation, transportation equipment	61-73	mnDM	32

TABLE 2-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	IND_	WGER_	U_		purchasing power parity:			
				PPPGDP	gdp	1950-74	1970DM/US$	111
				PPPGNP	gnp	50-74	1970DM/US$	111
				PPPNR	non-residential structures	50-74	1970DM/US$	111
				PPPPD	producer durables	50-74	1970DM/US$	111
			VA_	LC	value added	53,58-73	mnDM	54,SOEEC
			VAT_	LC	value added tax	68-74	mnDM	SOEEC
			WAGS_	LC	wages and salaries of employees	63-73	bnDM	54
		XNR			(PK component)	50-74		constructed
		XPD			(PK component)	50-74		constructed
		YNR			(PK component)	50-74		constructed
		YPD			(PK component)	50-74		constructed
		ZNR			(PK component)	50-74		constructed
		ZPD			(PK component)	50-74		constructed

CHAPTER THREE

Residential Sector Demand Data

The residential sector demand data was constructed for econometric analysis of residential energy demand.[1] Annual data needed for the model were historical times series covering years 1955 or 1960 through 1974, of residential consumers' expenditures on petroleum and its substitutes, coal, electricity and gas, as well as other consumption categories such as food, clothing, and durables. Other variables needed for this analysis were price deflators for these consumption categories, prices of fuels, disposable income, temperature data and population. Purchasing power parities were also needed to convert different currencies into one comparable monetary unit.* This section will describe these variables and explain how and from where they were obtained, why certain sources were chosen, and includes examples of the computer data file names. Following the discussion is a table which alphabetically lists all of the data file names, a definition of each, the units, and a bibliography number which refers to the bibliography in Chapter Six.

This section of the World Oil Project data base in an updated version of the data which was previously documented in "A User's Guide to the MIT World Energy Demand Data Base," May 1976. Some data has been changed from the first version, all variables have had recent years' observations added, and

*All of the data is stored on TROLL, a computer software package which provides an environment for creating, estimating and simulating economic models. TROLL is at the Information Processing Service at MIT. See Chapter Ten for more information.

in a few cases a data series was totally replaced. It is important to any readers who are familiar with the model to remember that this is the "raw" data base which was used by the modelers. This data was often transformed to different units or aggregated for the purpose of analysis. Where appropriate, the type of conversion performed will be very briefly described in order to help the reader understand the transition from data base to data for analysis.

Countries

The countries included in this section are: Belgium, Canada, France, Italy, the Netherlands, Norway, the United Kingdom, the United States and West Germany. All of the variables described below have been collected and stored on TROLL for each of these nine countries.

Variables

Private Consumption Expenditure

Private Consumption Expenditure is defined as the value of final expenditure by households and private non-profit institutions on current goods and services or purchases of goods, less the sales of second-hand goods and excluding land and buildings. Households, as a consumer group, include all individuals who are normal residents and groups with less than two full-time employees.[2] It was necessary to find sources with a consistent disaggregation of not only the usual categories of consumption, clothing, food, housing, etc., but that also included expenditures on individual fuel products. The four fuels concerned are liquid fuel or distillate fuel oil, solid fuel or coal, gas, and electricity.

Private Consumption Expenditure on Fuels

One of the main objectives in the data collection effort was to obtain a breakdown of private consumption expenditure on fuels. The Statistical Office of the European Economic Community (SOEEC) National Accounts includes expenditures with a fuel breakdown for years 1960-1970 or 1972, for EEC countries. This data, in millions of local currency in nominal or undeflated terms, was used.

Additional sources were needed to update these categories because the SOEEC has discontinued this disaggregation in recent years. For this reason a different approach was used to arrive at this expenditure category for the remaining years. Expenditures for the four fuels in recent years were determined by multiplying the quantity consumed by the price. Data for the residential consumption of the various fuels was taken from the OECD Energy Statistics on magnetic tape for these recent years' observations. The 'residential' category here refers only to private dwellings and private non-profit institutions; it is a subset of the domestic category which also includes agriculture, public utilities, commerce, returns to refineries, miners coal and "all other." An implicit private consumption expenditure on fuels was calculated for EEC countries using retail prices of the four fuels and these OECD quantities.

expenditure on gas	=	retail gas price	*	quantity consumed

(Figure 3-1)

An expenditure figure in local currency, nominal units was obtained in this way, and then converted to millions of local currency units.

In a few cases the OECD tape, Energy Statistics, did not disaggregate the domestic sector, and residential sector consumption data was unavailable. Where this occurred the historical ratio of residential consumption, as implied in the SOEEC, to "domestic" consumption in OECD was applied to the domestic consumption data from the OECD for recent years, to obtain a residential consumption approximation. For the United Kingdom the same methodology was used for 1972-1974, but quantity data was taken from the United Kingdom Digest of Energy Statistics.

The data sources used for the other countries, the USA, Canada, and Norway, to obtain private consumption expenditure on fuels for 1960-1970 or 1972 as well as the update through 1974 were the U.S. Survey of Current Business, the Economic Report of the President, Norway's national statistical yearbooks, Detailed Supply and Demand Statistics of Canada, and Canada's Energy Databank. All of these data series are in millions of local currency units in nominal terms, i.e., no adjustments made to account for inflation. Examples of the data file names follow.

private consumption expenditure on:

gas	"country"_NEXGAS_LC
liquid fuel	"country"_NEXFLIQ_LC

(Figure 3-2)

Private Consumption Expenditure on Food

For most countries, expenditures on food was obtained from SOEEC, OECD, or UN National Accounts. For the United Kingdom, the UK Annual Abstracts of Statistics was used for 1955-1972, and UN and OECD National Accounts were used for 1972-1974. All series were collected as available in both current and constant terms, in millions of local currency. Each constant or real currency series has a base year of 1970, and this was used to compute an implicit price index. In some cases a price index, base year 1970=100, was obtained from OECD National Accounts. The TROLL data file name for this category is:

nominal units:	"country"_NEXF_LC
price index:	"country"_Y70_NEXF

(Figure 3-3)

Private Consumption Expenditure on Clothing

For most countries, expenditures on clothing data was obtained from SOEEC, OECD, or UN National Accounts. For the United Kingdom, the UK Annual Abstract of Statistics was used for 1955-1972 and OECD National Accounts was used for 1972-1974. All series were collected as available in both current and constant terms, in millions of local currency. Each constant or real currency series has a base year of 1970, and this was used to compute an implicit price index. In some cases a price index, base year 1970=100, was obtained from OECD National Accounts. For an example of the data file name format, see Figure 3-3.

Private Consumption Expenditure on Durables

Expenditures on durables for most countries was obtained from SOEEC, OECD, or UN National Accounts. For the United Kingdom, the UK Annual Abstract of Statistics was used for 1975-1972 and OECD National Accounts was used for 1972-1974. All series were collected as available in both current and constant terms, in millions of local currency. Each constant or real currency series has a base year of 1970, and this was used to compute an implicit price index . In some cases a price index, base year 1970=100, was obtained from OECD National Accounts. For an example of the data file name format, see Figure 3-3.

Private Consumption Expenditure on Transportation and Communication

Expenditures on transportation and communication for most countries was obtained from SOEEC, OECD, or UN National Accounts. For the United Kingdom, the UK Annual Abstract of Statistics was used for 1955-1972 and OECD National Accounts was used for 1972-1974. All series were collected as available in both current and constant terms, in millions of local currency. Each constant or real currency series has a base year of 1970, and this was used to compute an implicit price index. In some cases a price index, base year 1970=100, was obtained from OECD National Accounts. For an example of the data file name format, see Figure 3-3.

Private Consumption Ependiture, Total

Data for most countries' total private consumption expenditure was obtained from OECD National Accounts. All series were collected in millions of local currency, current terms. A price index, base year 1970=100,

was also collected. For an example of the data file name format, see Figure 3-3.

Private Consumption Expenditure, All Other

Data for this category was constructed by subtracting from the total the expenditures for food, clothing, durables, transportation and communication and the four fuels. Also, a price index, using base year 1970=100, for the "all other" category from the OECD National Accounts was collected. The data file is "country"_Y70_NEXO.

No price index was collected, or implicit index computed for the categories representing the fuels, as these categories received different treatment in the econometric analysis. An average price of energy was derived from the fuel prices, estimated with the translog aggregator.[1] The fuel price indices obtained in this way are not stored as data files. For use by the translog aggregator, the data was deflated to 1970 terms using the total consumption expenditure index, and converted to US dollars using purchasing power parities.

Fuel Prices

Retail prices of home heating oil (#2 fuel oil), electricity, coal, and gas were needed for this analysis. The original price series and all updates were obtained from SOEEC publications Studien and Erhabungen and Energy Statistics, from the IEA and FEA, The Basic Petroleum Data Book, the Edison Electric Institute, the UK Digest of Energy Statistics, the Economic Report of the President, and Norway's national statistical yearbooks.

The price series range from 1955 or 1960 through 1974 and all are in local currency/tcal, current prices. These prices are usually published in "natural" units, such as tons, barrels, or liters and were converted to tcals, or Tera Calories, which is a heat measurement. Chapter Eight defines tcals and lists the conversion factors. The SOEEC figures were published in "eurs"/natural unit, as quarterly observations. "Eurs" is an international monetary unit, and these were converted to local currency using the SOEEC exchange rates. Quarterly data was averaged to obtain an annual figure. For use in econometric modeling these data files were deflated to 1970 values using the total private consumption expenditure index, 1970=100, and converted to 1970 US dollars/tcal with purchasing power parities. For a discussion of purchasing power parities, see Chapter Nine. Although the consumption expenditure categories are called liquid fuel and solid fuel, these categories include mainly fuel oil and coal respectively. The retail prices for fuel oil and coal therefore are assumed to correspond to these categories. Examples of the data file names follow.

<u>retail price</u>:		
fuel oil		"country"_SRETPRFO_LC
	gas	"country"_SRETGAS_LC

(Figure 3-4)

Some changes that were made in the original data will be of interest to users who have obtained the first edition of the User's Guide and a copy of the data base prior to January 1977. Errors were detected and the following steps were taken to correct the data. (Next page)

Data File	Correction
France retail gas price	* 10
Italy retail gas price	* 10
Netherlands retail gas price	* 10
Norway retail gas price	replaced
Japan retail gas price	deleted

(Figure 3-5)

Personal Disposable Income

Personal disposable income, with data file name "country"_NDI_LC, was obtained from certain editions of OECD National Accounts. This is a subset of national disposable income, which does not include corporate enterprises and government. Not all issues of the OECD publication disaggregate this item. Data is in millions of local currency and covers from 1950 to 1955 through 1974.

Population

Population data was taken from several editions of the UN Demographic Yearbook. Data is in millions and covers years 1950-1974 for all countries. This is filed on TROLL as "country"_POP.

Temperature

Temperature data is an average temperature of the five coldest months, taken from monthly data published in the U.S. Weather Bureau's Monthly Climatic Data for the World. For a small country the average of

the capital city was collected, for large or geographically and climatically diverse countries, data for the largest cities was collected. Data is in degrees Fahrenheit and covers from 1955 to 1975. Data file names are "country"_TEMP, or "country"_"city"_TEMP.

Data Tables

Examples of data file names, which are also mnemonics for the variables, have been included in the above text. The following table, Table 3-1, is an alphabetical listing of all of the data file names in this sector. Note that all the residential data files are stored in TROLL in the section "TWOTIME". This means that all data file names are preceded by the word "TWOTIME". For an index of terms and data file names see Chapter Seven.

Included in the following table is information on the range of years for each file, the units, the definition, and a bibliography code number which refers to the bibliography in Chapter Six.

References

1. Pindyck, R.S., "International Comparisons of the Residential Demand for Energy," Working Paper #MIT EL 76-023WP, MIT Energy Lab, Cambridge, MA.

2. Yearbook of National Accounts Statistics, Department of Economic and Social Affairs, Statistical Office of the UN, New York, NY.

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	BELG_	NDI_	LC	personal disposable income	1953-74	mnBfr	32
					private consumption expenditures:			
			NEXA_	LC	clothing	55-74	mnBfr	32
			NEXD_	LC	durables	55-74	mn	32
			NEXELEC_	LC	electricity	60-74	mn	40,32
			NEXF_	LC	food	55-74	mn	40,32
			NEXFLIQ_	LC	liquid fuel	60-74	mn	40,32
			NEXFSOL_	LC	solid fuel	60-74	mn	40,32
			NEXGAS_	LC	gas	60-74	mn	40,32
			NEXT_	LC	transportation	55-74	mn	32
			NEXT_	LC	total	55-74	mn	32
			POP		population	50-74	mn	92
					retail price:			
			SRETCOLH_	LC	coal	55-75	Bfr/tcal	37
			SRETELEC_	LC	electricity	55-75	Bfr/tcal	37

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	BELG_		retail price:			
			SRETGAS LC	gas	55-75	Bfr/tcal	37
			SRETPRFO_ LC	fuel oil	58-74	Ffr/tcal	37
			TEMP	temperature	55-75	degreesF	66
				index of private consumption expenditures:			
			Y70_ INEXA	clothing	55-74	1970=100	40,57
			INEXD	durables	55-74	1970=100	40,57
			INEXF	food	55-74	1970=100	40,57
			INEXO	all other	55-74	1970=100	40,32
			INEXT	transportation	55-74	1970=100	40,57
			INEXT	total	55-74	1970=100	40,32
		CAN_	MON_ TEMP	temperature in Montreal	54-75	degreesF	66
			NDI_ LC	personal disposable income	50-74	mnCan$	32

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	CAN_			private consumption expenditures:			
			NEXA_	LC	clothing	50-74	mnCan$	32
			NEXD_	LC	durables	55-74	mnCan$	32,57
			NEXELEC_	LC	electricity	50-74	mnCan$	constructed 99
			NEXF_	LC	food	50-74	mnCan$	32
			NEXFLIQ_	LC	liquid fuel	58-74	mnCan$	99,98, constructed
			NEXFSOL_	LC	solid fuel	61-74	mnCan$	99,98, constructed
			NEXGAS_	LC	gas	50-74	mnCan$	99,98 constructed
			NEXT_	LC	transportation	50-74	mnCan$	32
			NEXT_	LC	total	55-74	mnCan$	32
			POP		population	50-74	mn	92

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	CAN_		retail price:			
			SRETCOLH_ LC	coal	1955-74	Can$?tcal	99
			SRETELEC_ LC	electricity	58-74	Can$/tcal	99
			SRETGAS_ LC	gas		Can$/tcal	99
			SRETPRFO_ LC	fuel oil		Can$/tcal	99
			TOR_ TEMP	temperature in Toronto	55-73	degreesF	66
			VAN_ TEMP	temperature in Vancouver	54-75	degreesF	66
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	50-74	1970=100	5,32, constructed
			INEXD	durables	50-74	1970=100	5,32, constructed
			INEXF	food	50-74	1970=100	5,57, constructed
			INEXO	other	50-74	1970=100	5,32, constructed
			INEXT	transportation	50-74	1970=100	5,57, constructed
			INEXT	total	50-74	1970=100	5,32, constructed

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	FRAN_	MARS_ TEMP	temperature in Marseille	1955-74	degreesF	66
			NDI_ LC	personal disposable income	50-74	mnFfr	32
				private consumption expenditure:			
			NEXA_ LC	clothing	58-74	mnFfr	40,32
			NEXD_ LC	durables	58-74	mnFfr	40,32
			NEXELEC_ LC	electricity	60-74	mnFfr	40,32, constructed
			NEXF_ LC	food	58-74	mnFfr	40,57
			NEXFLIQ_ LC	liquid fuel	60-74	mnFfr	40,32 constructed
			NEXFSOL_ LC	solid fuel	60-74	mnFfr	40,32, constructed
			NEXGAS_ LC	gas	60-74	mnFfr	40,32, constructed
			NEXT_ LC	transportation	58-74	mnFfr	40,32
			NEXT_ LC	total	55-74	mnFfr	32
			PARIS_ TEMP	temperature in Paris	55-75	degreesF	66
			POP	population	50-74	mn	92

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	FRAN_		retail price:			
			SRETCOLH_ LC	coal	1955-74	Ffr/tcal	37
			SRETELEC_ LC	electricity	55-74	Ffr/tcal	37
			SRETGAS_ LC	gas	55-74	Ffr/tcal	
			SRETPRFO_ LC	fuel oil	55-74	Ffr/tcal	39,41
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	58-74	1970=100	constructed, 40,57
			INEXD	durables	58-74	1970=100	constructed, 40,57
			INEXF	food	58-74	1970=100	constructed, 40,57
			INEXO	other	58-74	1970=100	constructed, 40,32
			INEXT	transportation	58-74	1970=100	constructed, 40,57
			INEXI	total	58-74	1970=100	constructed, 40,57

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	ITAL_	NDI_ LC	personal disposable income	1951-74	mnLiraIt	32
				private consumption expenditure:			
			NEXA_ LC	clothing	51-74	mnLira	40,32
			NEXD_ LC	durables	55-74	mnLira	57
			NEXELEC_ LC	electricity	60-74	mnLira	40,32 constructed
			NEXF_ LC	food	55-74	mnLira	40,32
			NEXFLIQ_ LC	liquid fuel	60-74	mnLira	40,32 constructed
			NEXFSOL_ LC	solid fuel	59-74	mnLira	40,32, constructed
			NEXGAS_ LC	gas	60-74	mnLira	40,32, constructed
			NEXT_ LC	transportation	51-74	mnLira	40,32
			NEXI_ LC	total	55-74	mnLira	32
			POP	population	51-74	mn	92

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRPAHY NUMBER
DATA_	TWOTIME_	ITAL_		retail price:			
			SRETCOLH_ LC	coal	1955-74	Lira/tcal	38
			SRETELEC_ LC	electricity	60-74	Lira/tcal	40
			SRETGAS_ LC	gas	55-74	Lira/tcal	41
			SRETPRFO_ LC	fuel oil	57-75	Lira/tcal	39,41
			TEMP	temperature	55-75	degreesF	66
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	51-74	1970=100	40,57, constructed
			INEXD	durables	51-74	1970=100	40,57, constructed
			INEXF	food	55-74	1970=100	40,57, constructed
			INEXO	other	55-74	1970=100	40,32, constructed
			INEXT	transportation	51-74	1970=100	40,57, constructed
			INEXI	total	55-74	1970=100	40,57, constructed

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	NETH_	NDI_ LC	personal disposable income	1950-74	mnGuilders	32
				private consumption expenditure:			
			NEXA_ LC	clothing	55-74	mnGuilders	40,32
			NEXD_ LC	durables	55-74	mnGuilders	40,57
			NEXELEC_ LC	electricity	60-74	mnGuilders	40,32
			NEXF_ LC	food	55-74	mnGuilders	40,57
			NEXFLIQ_ LC	liquid fuel	60-74	mnGuilders	40,32
			NEXFSOL_ LC	solid fuel	60-74	mnGuilders	40,32
			NEXGAS_ LC	gas	59-74	mnGuilders	32
			NEXT_ LC	transportation	55-74	mnGuilders	40,57
			NEXT_ LC	total	55-74	mnGuilders	32
			POP	population	50-74	mn	92
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	55-74	1970=100	40,57, constructed

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	NETH_	(Y70_)					
			INEXD		durables	1955-74	1970=100	40,57, constructed
			INEXF		food	55-74	1970=100	40,57, constructed
			INEXO		other	55-74	1970=100	40,32, constructed
			INEXT		transportation	55-74	1970=100	40,32, constructed
			INEXT		total	55-74	1970=100	40,32, constructed
		NOR_	NDI_	LC	personal disposable income	55-74	mnKroner	32
					private consumption expenditure:			
			NEXA_	LC	clothing	50-74	mnKroner	28,30,31,32
			NEXD_	LC	durables	55-74	mnKroner	28,30,31,57
			NEXELEC_	LC	electricity	50-74	mnKroner	28,30,31,32
			NEXF_	LC	food	55-74	mnKroner	28,30,31,57
			NEXFLIQ_	LC	liquid fuel	50-74	mnKroner	28,30,31,32
			NEXFSOL_	LC	solid fuel	51-74	mnKroner	32

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	NOR_	NEXGAS_ LC	gas	1950-74	mnKroner	28,30,31,32
			NEXT_ LC	transportation	53-74	mnKroner	28,30,31,32
			NEX1_ LC	total	55-74	mnKroner	32
			POP	population	50-74	mn	92
				retail price:			
			SRETCOLH_ LC	coal	50-75	Kroner/tcal	31
			SRETELEC_ LC	electricity	64-74	Kroner/tcal	31
			SRETGAS_ LC	gas	55-74	Kroner/tcal	31
			SRETPRFO_ LC	fuel oil	62-75	Kroner/tcal	31
			TEMP	temperature	55-75	degreesF	66
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	55-74	1970=100	57,28
			INEXD	durables	55-74	1970=100	57,28
			INEXF	food	55-74	1970=100	57,28
			INEXO	other	55-74	1970=100	28,57

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	NOR_	(Y70_)				
			INEXT	transportation	1955-74	1970=100	28,57
			INEXl	total	55-74	1970=100	28,57
		UK_	NDI_ LC	private disposable income	53-74	mn	32
				private consumption expenditure:			
			NEXA_ LC	clothing	57-74	mnPounds	44,32
			NEXD_ LC	durables	54-74	mnPounds	44,32
			NEXELEC_ LC	electricity	57-74	mnPounds	44,32
			NEXF_ LC	food	55-74	mnPounds	57
			NEXFLIQ_ LC	liquid fuel	57-74	mnPounds	44,32
			NEXFSOL_ LC	solid fuel	57-74	mnPounds	44,32
			NEXGAS_ LC	gas	57-74	mnPounds	44,32
			NEXT_ LC	transportation	55-74	mnPounds	57
			NEXl_ LC	total	55-74	mnPounds	32
			POP	population	51-74	mn	92

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	UK_		retail price:			
			SRETCOLH_ LC	coal	1955-74	Pounds/tcal	
			SRETELEC_ LC	electricity	50-74	Pounds/tcal	47
			SRETGAS_ LC	gas	50-74	Pounds/tcal	47
			SRETPRFO_ LC	fuel oil	60-75	Pounds/tcal	47
			TEMP	temperature	55-75	degreesF	66
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	57-74	1970=100	44,57
			INEXD	durables	57-74	1970=100	44,57
			INEXF	food	57-74	1970=100	44,57
			INEXO	other	57-75	1970=100	44,32
			INEXT	transportation	55-74	1970=100	44,32
			INEXI	total	57-74	1970=100	44,32
		USA_	CHICAGO_ TEMP	temperature in Chicago	55-75	degreesF	66
			NDI_ LC	personal disposable income	50-74	mnUS$	32

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
					private consumption expenditure:			
DATA_	TWOTIME_	USA_						
			NEXA_	LC	clothing	1950-74	mnUS$	62,279
			NEXD_	LC	durables	50-74	mnUS$	62,279
			NEXELEC_	LC	electricity	50-74	mnUS$	62,279,32
			NEXF_	LC	food	50-74	mnUS$	62,279
			NEXFLIQ_	LC	liquid fuel	50-74	mnUS$	62,279,32
			NEXFSOL_	LC	solid fuel	50-74	mnUS$	62,279,32
			NEXGAS_	LC	gas	50-74	mnUS$	62,279
			NEXT_	LC	transportation	50-74	mnUS$	62,279
			NEXT_	LC	total	50-74	mnUS$	62,279
			NYC_	TEMP	temperature in New York City	55-75	degreesF	66
			POP		population	50-74	mn	92
			SANDIEGO_	TEMP	temperature in San Diego	55-75	degreesF	66
					retail price:			
			SRETCOLH_	LC	coal	50-74	US$/tcal	46
			SRETELEC_	LC	electricity	52-74	US$/tcal	64,79

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	USA_	SRETGAS_ LC	gas	1959-74	US$/tcal	60,79
			SRETPRFO_ LC	liquid fuel	56-74	US$/tcal	60,8
				index of private consumption expenditure:			
			Y70_ INEXA	clothing	50-74	1970=100	32,79
			INEXD	durables	50-74	1970=100	32,57
			INEXF	food	50-74	1970=100	32,79
			INEXO	other	50-74	1970=100	32,79
			INEXT	transportation	50-74	1970=100	32,79
			INEXl	total	50-74	1970=100	32
		WGER_	HAMBURG_ TEMP	temperature in Hamburg	55-75	degreesF	66
			MUNICH_ TEMP	temperature in Munich	55-75	degreesF	66
			NDI_ LC	personal disposable income	50-74	mnDM	32
				private consumption expenditure:			
			NEXA_ LC	clothing	55-74	mnDM	40,32
			NEXD_ LC	durables	55-74	mnDM	40,32

TABLE 3-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TWOTIME_	WGER_	NEXELEC_ LC	electricity	55-74	mnDM	40,32,98
			NEXF_ LC	food	60-74	mnDM	40,32
			NEXFLIQ_ LC	liquid fuel	60-74	mnDM	40,32,98, constructed
			NEXFSOL_ LC	solid fuel	55-74	mnDM	40,32,98, constructed
			NEXGAS_ LC	gas	59-74	mnDM	40,32,98, constructed
			NEXT_ LC	transportation	55-74	mnDM	40,32
			POP	population	50-74	mn	92
				retail price:			
			SRETCOLH_ LC	coal	55-74	DM/tcal	37,222
			SRETELEC_ LC	electricity	55-74	DM/tcal	37,222
			SRETGAS_ LC	gas	55-74	DM/tcal	37,222
			SRETPRFO_ LC	fuel oil	56-74	DM/tcal	39,41,222

ABLE 3-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
)ATA_	TWOTIME_	WGER_	Y70_	index of private consumption expenditures:			
			INEXA	clothing	1955-74	1970=100	40,57
			INEXD	durables	55-74	1970=100	40,57
			INEXF	food	55-74	1970=100	40,57
			INEXO	other	55-74	1970=100	40,32
			INEXT	transportation	55-74	1970=100	40,57
			INEXT	total	55-74	1970=100	32,40

CHAPTER FOUR

Transportation Sector Demand Data

The Transportation sector data has been compiled for the purpose of estimation and analysis of petroleum consumption by the transportation sector. The focus of this section is actually on passenger vehicles and consumption of diesel fuel and gasoline. Air, rail and water transport vehicles and the associated fuels are not included. All of the data to be described here has been collected from public sources and stored as time series on the computer system, TROLL*. The data generally covers years 1960-1973 as annual observations for fifteen major energy consuming countries. The variables contained in this section are: vehicles in use, new registrations of vehicles, traffic volume, consumption of motor gasoline and diesel fuel, taxation of those fuels, the quantity of each of those fuels consumed by road vehicles, an index of private consumption expenditure on personal transportation equipment, an auto depreciation rate, and a price index for autos. The sources of the information and the characteristics of the data will be briefly discussed in this chapter, and followed by a table which alphabetically lists all of the computer data file names along with the units used, a brief definition of the variable, and a source code number which refers to the bibliography in Chapter Six.

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*TROLL is a computer software package which provides a comprehensive environment for economic models. TROLL operates at the Information Processing Service at MIT. For more inormation see Chapter Ten.

Countries

The countries included in this section are: Austria, Belgium, Canada, Denmark, Finland, France, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, the United States, and West Germany. For Austria, Denmark, Finland, and Spain, however, complete information was not available. The variables described below are always available for the remaining eleven and sometimes available for Austria, Denmark, Finland, and Spain.

Variables

Vehicles in Use

Data on vehicles in use, or the stock of vehicles for passenger cars, buses and goods vehicles (commercial use) was collected. The data represents the number of each type of vehicle registered as of December 31 of the given year. The sources used were the UN Statistical Yearbook, World Road Statistics, The Motor Industry in Great Britain, Canada Yearbook, and Highway Statistics. The range of years available varies from country to country but most often the data is available from 1950 through 1975. Often several sources had to be used for one country to obtain a complete time series. Examples of the data file names used on the computer system follow.

"country"_SPC	stock of passenger cars
"country"_SB	stock of buses
"country"_SGV	stock of goods vehicles

(Figure 4-1)

New Registrations

The number of new registrations of vehicles for the same categories, passenger cars, buses and goods vehicles, was also collected. The data indicates the number of vehicles registered for the first time in the given country. The sources used were: World Road Statistics, The Motor Industry in Great Britain, World Motor Vehicle Data, and Highway Statistics. Several sources were often used for one country in order to obtain a complete time series. An example of the data file name used to store the data on TROLL follows.

"country"_NRPC new registrations of passenger vehicles

(Figure 4-2)

Traffic Volume

A means of measuring actual traffic volume in addition to number of vehicles was required. World Road Statistics contains such a measure of traffic volume, as million vehicle kilometers, (the number of kilometers travelled per million vehicles). The unit of measure for the United States is miles per million vehicles. The data was generally available for the years 1962-1975. An example of the TROLL data file name appears below.

"country"_TVPC traffic volume of passenger vehicles

(Figure 4-3)

Consumption of Motor Gasoline and Diesel Fuel

Final internal consumption of motor gasoline and diesel fuel was obtained from OECD Energy Statistics 1960-1973. The information is published as thousands of metric tons but the figures were converted to tcals for incorporation in the data base (See Chapter Eight for a definition of tcals and a table of conversion factors used). The data is stored under these file names:

"country"_FPRMG	final consumption of motor gas
"country"_FPRDS	final consumption of diesel fuel

(Figure 4-4)

Consumption of these two fuels for road transport purposes was also found in OECD Energy Statistics, 1960-1973. The data was converted to tcals and is stored as:

"country"_VCMG	vehicular consumption of motor gas
"country"_VCDL	vehicular consumption of diesel fuel

(Figure 4-5)

Taxation of Motor Gasoline and Diesel Fuel

Taxation of motor gasoline and diesel fuel was found in World Road Statistics. The data is expressed as a percentage of the total retail price. The data is not always available for each of our countries but

the range of years is generally 1962-1975. The data file names are:

"country"_TMG	taxation of motor gas
"country"_TDL	taxation of diesel fuel

(Figure 4-6)

Index of Private Consumption Expenditure on Personal Transportation Equipment

An index of private expenditure on personal transportation equipment was created using the ratio of expenditure in current purchasers value (local currency) to expenditures in constant purchasers values at 1970. The information is from the UN National Accounts Yearbook, where personal transportation equipment is found under transpcrtation and communication. The data file name is:

"country"_INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment

(Figure 4-7)

Consumption of Motor Gasoline Per Distance Unit

Total consumption of motor gasoline per million vehicle kilometers was calculated using final consumption of motor gasoline and the measure of traffic volume. The measure of traffic volume in the US was converted from miles to million vehicle kilometers for this calculation, so the units of this variable are always tcals/million vehicle kilometers. This measure

is actually the inverse of fuel efficiency. The TROLL data file name is:

"country"_CPMK	motor gasoline consumed/million vehicle kilometers

(Figure 4-8)

Depreciation Rate

A depreciation rate for autos was derived from the data on stock of passenger cars and new registrations of passenger cars. The depreciation rate is measured as the fraction of autos registered December 31 of the previous year not registered December 31 of the current year.

$$\text{Depreciation}_{+} = (\text{SPC}_{+-1} - \text{SPC}_{+} + \text{NRPC})/\text{SPC}_{+-1}$$

(Figure 4-9)

The data file name for this variable is:

"country"_DEPRATE

(Figure 4-10)

Price Index for Passenger Vehicles

A relative price index of cars was constructed using the index of private consumption expenditure on personal transportation equipment, 1970=100, and dividing by the gdp price index, 1970=100. This ratio was

then scaled to 1970=100 and stored as:

"country"_RPCARS_Y relative price of cars, 1970=100

(Figure 4-11)

A Note About Data Reliability

Most of the sources used are annual publications and sometimes a minor change in definition or reporting occurred from year to year. This means that a particular time series as reported is not actually a continual time series. This occurs quite frequently in the sources employed for this sector. In addition, we detected a number of transposed years and other printing errors. Where we detected these errors we corrected the numbers, and in some cases "smoothed" a few years. Where this was done is noted in the "comments" section of the data file.

Tables

The following table, table 4-1, is an alphabetical listing of all of the data files in the transportation section of the database. The user should note that all of this data is in the transportation "archive" which means that all data file names are preceded by the character string "trans". The table that follows includes a brief description of the variable, the range of years included, the units, and a bibliography code number that refers to the bibliography in Chapter Six. An explanation of TROLL data file naming conventions can be found in Chapter Seven along with an index of terms. Chapter Ten contains information on accessing TROLL, and obtaining the database.

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
				first registration of:			
DATA_	TRANS_	AUSL_	NRB	buses	1956-66	# of veh.	330
			NRPC	cars	56-75	# of veh.	310,330
			SPC	stock of passenger cars	50-75	# of veh.	300
				consumption of:			
		AUST_	FPRDS	diesel fuel	50-73	tcals	32
			FPRMG	motor gas	50-73	tcals	32
				new registrations of:			
			NRB	buses	62-75	# of veh.	310
			NRGV	goods vehicles	62-75	# of veh.	310
			NRPC	passenger cars	58-75	# of veh.	310,320
				price of:			
			PDL	diesel fuel	62-75	US¢/liter	310
			PMG	motor gas	62-75	US¢/liter	310
			SB	buses and coaches in use	50-75	# of veh.	310,320
			SGV	goods vehicles in use	62-75	# of veh.	310
			SPC	stock of passenger cars	50-75	# of veh.	300

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	AUST_		% tax of:			
			TDL	diesel fuel	1962-75		310
			TMG	motor gas	62-75		310
				traffic volume of:			
			TVB	buses	65	mnvehkm	310
			TVGV	goods vehicles	65	mnvehkm	310
			TVPC	passenger cars	65	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-74	tcals	32
		BELG_	CPMK	consumption of motor gasoline per vehicle kilometer.	62-73	mnvehkm	constructed
			DEPRATE	auto depreciation rate	58-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	62-74	1970=100	57 constructed

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	BELG_		new registrations of:			
			NRB	buses	1962-75	# of veh.	310
			NRGV	goods vehicles	62-75	# of veh.	310
			NRPC	passenger cars	58-75	# of veh.	310,320
				price of:			
			PDL	diesel fuel	62-75	US¢/liter	310
			PMG	motor gas	62-75	US¢/liter	310
			RPCARS_Y70	price index of passenger cars	62-74	1970=100	57,constructed
			SB	buses and coaches in use	50-54, 56-75	# of veh.	310,320
			SGV	goods vehicles in use	62-75	# of veh.	310
			SPC	stock of passenger cars	50-75	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	62-65, 67-74	mnvehkm	310
			TVGV	goods vehicles	62-65, 68-72	mnvehkm	310
			TVPC	passenger cars	62-75	mnvehkm	310

ABLE 4-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
ATA_	TRANS_	BELG_		vehicular consumption of:			
			VCDL	diesel fuel	1950-74	tcals	32
			VCMG	motor gas	50-75	tcals	32
		CAN_	CPMK	consumption of motor gasoline per vehicle kilometer	67-70	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	51-74		constructed
				consumption of:			
			FPRDS	diesel fuel	50-73	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	62-74	1970=100	57, constructed
				new registrations of:			
			NRGV	goods vehicles	53-66	# of veh.	330
			NRPC	passenger cars	50-74	# of veh.	310,321,330
			RPCARS_Y70	price index of passenger cars	67-70	1970=100	57, constructed
				stock of:			
			SB	buses and coaches in use	50-70	# of veh.	310,321
			SGV	goods vehicles in use	50-61, 67-70	# of veh.	310,320,321
			SPC	passenger cars	50-69	thou. veh.	300

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	CAN_	TVPC	traffic volume of passenger cars	67-70	nmvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	1959-74	tcals	32
			VCMG	motor gas	50-74	tcals	32
		DEN_		consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
				new registrations of:			
			NRB	buses	63-75	# of veh.	310
			NRGV	goods vehicles	63-751	# of veh.	310
			NRPC	passenger cars	58-75	# of veh.	310,320
				stock of:			
			SB	buses and coaches in use	51-61	# of veh.	310,320
			SGV	goods vehicles in use	52,54-61, 67-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	DEN_		% tax of:			
			TDL	diesel fuel	1967-74	%	310
			TMG	motor gas	63-75	%	310
				traffic volume of:			
			TVB	buses	69-72	mnvehkm	310
			TVGV	goods vehicles	69-72	mnvehkm	310
			TVPC	passenger cars	69-72	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-75	tcals	32
		FIN_		consumption of:			
			FPRDS	diesel fuel	59-74	tcals	32
			FPRMG	motor gas	59-73	tcals	32
				new registrations of:			
			NRB	buses	62-75	# of veh.	310
			NRGV	goods vehicles	62-75	# of veh.	310
			NRPC	passenger cars	58-75	# of veh.	310,320

ABLE 4-1

ILE YPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
ATA_	TRANS_	FIN_		stock of:			
			SB	buses and coaches in use	1951-75	# of veh.	310,320
			SGV	goods vehicles in use	51-75	# of veh.	310,32
			SPC	stock of passenger cars	50-75	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	62-65, 67-75	mnvehkm	310
			TVGV	goods vehicles	62-65, 67-75	mnvehkm	310
			tvpc TVPC	passenger cars	62-65, 67-75	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	59-74	tcals	32
			VCMG	motor gas	59-75	tcals	32

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	FRAN_	CPMK	consumption of motor gasoline per vehicular kilometer	1962-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	58-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	62-74	1970=100	57,constructed
			NRB	new registrations of:			
			NRB	buses	52-70	# of veh.	310,320
			NRGV	goods vehicles	52-75	# of veh.	310,320
			NRPC	passenger cars	52-75	# of veh.	310,320,330
				price of:			
			PDL	diesel fuel	62-75	US¢/liter	310
			PMG	motor gas	62-75	US¢/liter	310
			RPCARS_Y70	price index for passenger vehicles	62-74	1970=100	57,constructed
			SB	buses and coaches in use	51-75	# of veh.	310,320
			SGV	goods vehicles in use	51-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	FRAN_		% tax of:			
			TDL	diesel fuel	1962-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	62-75	mnvehkm	310
			TVGV	goods vehicles	62-75	mnvehkm	310
			TVPC	passenger cars	62-75	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-75	tcals	32
		ITAL_	CPMK	consumption of motor gasoline per vehicle kilometer	62-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	58-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	62-74	1970=100	57,constructed

\BLE 4-1

LE 'PE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
TA_	TRANS_	ITAL_		new registrations of:			
			NRB	buses	1950-75	# of veh.	310,330
			NRGV	goods vehicles	50-75	# of veh.	310,330
			NRPC	passenger cars	50-75	# of veh.	310,330
			RPCARS_Y70	price index of passenger cars	62-74	1970=100	57,constructed
			SB	buses and coaches in use	50-74	# of veh.	310,320
			SGV	goods vehicles in use	53-74	# of veh.	310,320
			SPC	stock of passenger cars	50-74	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	62-72	mnvehkm	310

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	ITAL_	TVGV	goods vehicles	1962-74	mnvehkm	310
			TVPC	passenger cars	62-72	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-75	tcals	32
		JAP_		consumption of:			
			FPRDS	diesel fuel	50-73	tcals	32
			FPRMG	motor gas	50-73	tcals	32
				new registrations of:			
			NRB	buses	55-66	# of veh.	330
			NRGV	goods vehicles	55-66	# of veh.	330
			NRPC	passenger cars	58-75	# of veh.	310,330
			SPC	stock of passenger cars	50-75	thou. veh.	300
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-74	tcals	32

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	NETH_	CPMK	consumption of motor gasoline per vehicle kilometer	1962-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	58-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	62-74	1970-100	57,constructed
				new registrations of:			
			NRB	buses	62-75	# of veh.	310
			NRGV	goods vehicles	62-75	# of veh.	310
			NRPC	passenger cars	58-75	# of veh.	310
			RPCARS_Y70	price index of passenger cars	62-74	1970=100	57,constructed
			SB	buses and coaches in use	50-75	# of veh.	310,320
			SGV	goods vehicles in use	50-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	NETH_	TMG	motor gas	1962-75	% of price	310
				traffic volume of:			
			TVB	buses	62-74	mnvehkm	310
			TVGV	goods vehicles	62-74	mnvehkm	310
			TVPC	passenger cars	62-74	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-75	tcals	32
		NOR_	CPMK	consumption of motor gas per vehicle kilometer	62-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	62-74		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	60-74	1970=100	57,constructed

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	NOR_		new registrations of:			
			NRB	buses	62-75	# of veh.	310
			NRGV	goods vehicles	62-75	# of veh.	310
			NRPC	passenger cars	62-75	# of veh.	310
			RPCARS_Y70	price index for passenger vehicles	60-69	1970=100	57,constructed
			SB	buses and coaches in use	1950-57, 62-75	# of veh.	310,320
			SGV	goods vehicles in use	50-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	62-75	mnvehkm	310
			TVGV	goods vehicles	62-75	mnvehkm	310
			TVPC	passenger cars	62-75	mnvehkm	310

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	NOR_		vehicular consumption of:			
			VCDL	diesel fuel	1950-74	tcals	32
			VCMG	motor gas	50-75	tcals	32
		SPAN_		consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
				new registrations of:			
			NRB	buses	62-74	# of veh.	310
			NRGV	goods vehicles	67-74	# of veh.	310
			NRPC	passenger cars	58-74	# of veh.	310,320
			SB	buses and coaches in use	67-74	# of veh.	310,320
			SGV	goods vehicles in use	67-74	# of veh.	310,320
			SPC	stock of passenger cars	50-74	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	67-73	% of price	310
			TMG	motor gas	67-73	% of price	310

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	SPAN_		traffic volume of:			
			TVB	buses	67-70	mnvehkm	310
			TVGV	goods vehicles	67-74	mnvehkm	310
			TVPC	passenger cars	67-74	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCDL	motor gas	50-74	tcals	32
		SWED_	CPMK	consumption of motor gas per vehicle kilometer	62-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	62-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	60-74	1970=100	57,constructed
				new registrations of:			
			NRB	buses	59-75	# of veh.	310,330
			NRGV	goods vehicles	50-75	# of veh.	310,330

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	SWED_	NRPC	passenger cars	1950-75	# of veh.	310,320
			RPCARS_Y70	price index for passenger vehicles	60-69	1970=100	57,constructed
			SB	buses and coaches in use	50-75	# of veh.	310,320
			SGV	goods vehicles in use	50-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	63,64	mnvehkm	310
			TVGV	goods vehicles	63,64	mnvehkm	310
			TVPC	passenger cars	63,64	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			FCMG	motor gas	50-75	tcals	32
		SWIT_	CPMK	consumption of motor gas per vehicle kilometer	62-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	62-75		constructed

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	SWIT_		consumption of:			
			FPRDS	diesel fuel	1950-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	60-74	1970=100	57,constructed
				new registrations of:			
			NRB	buses	62-75	# of veh.	310,320
			NRGV	goods vehicles	62-75	# of veh.	310,320
			NRPC	passenger cars	58-75	# of veh.	310,320
			RPCARS_Y70	price index for passenger vehicles	60-69	1970=100	57,constructed
			SB	buses and coaches in use	50-75	# of veh.	310,320
			SGV	goods vehicles in use		# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVPC	passenger cars	70	mnvehkm	310

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	SWIT_		vehicular consumption of:			
			VCDL	diesel fuel	1950-74	tcals	32
			VCMG	motor gas	50-74	tcals	32
		TURK_	SB	buses and coaches in use	67-75	# of veh.	310,320
			SGV	goods vehicles in use	67-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. veh.	300
				traffic volume of:			
			TVB	buses	67-70	mnvehkm	310
			TVPC	passenger cars	67-75	mnvehkm	310
		UK_	CPMK	consumption of motor gas per vehicle kilometer	62-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	51-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	63-74	1970=100	57,constructed

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	UK_		new registrations of:			
			NRB	buses	1950-75	# of bus	310,320
			NRGV	goods vehicles	50-75	# of veh.	310,320
			NRPC	passenger cars	50-75	# of cars	310,320
			RPCARS_Y70	price index of passenger cars	63-74	1970=100	57,constructed
			SB	buses and coaches in use	62-75	# of bus	310,320
			SGV	goods vehicles in use	62-75	# of veh.	310,320
			SPC	stock of passenger cars (Great Britain only)	50-74	thou. cars	300
				% tax of:			
			TDL	diesel fuel	62-75	% of price	310
			TMG	motor gas	62-75	% of price	310
				traffic volume of:			
			TVB	buses	62-75	mnvehkm	310
			TVGV	goods vehicles	62-75	mnvehkm	310
			TVPC	passenger cars	62-75	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-75	tcals	32

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	USA_	CPMK	consumption of motor gas per vehicle kilometer	1962-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	51-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-73	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	63-74	1970=100	57,constructed
				new registrations of:			
			NRGV	goods vehicles	58-74	# of veh.	330
			NRPC	passenger cars	58-74	# of cars	310
			RPCARS_Y70	price index of passenger cars	63-74	1970=100	57,constructed
			SB	buses and coaches in use	50-74	thousands	331
			SBV	goods vehicles in use	50-74	thousands	331
			SPC	stock of passenger cars	50-74	thousands	331
				traffic volume of:			
			TVB	buses	54-72	mnvehmiles	331
			TVGV	goods vehicles	54-72	mnvehmiles	331
			TVPC	passenger cars	54-72	mnvehmiles	331

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	WGER_	CPMMK	consumption of motor gas per vehicle kilometer	1962-73	tcals/ mnvehkm	constructed
			DEPRATE	auto depreciation rate	51-75		constructed
				consumption of:			
			FPRDS	diesel fuel	50-74	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			INEXPTE_Y70	index of private consumption expenditure on personal transportation equipment	63-74	1970=100	57,constructed
				new registrations of:			
			NRB	buses	50-75	# of veh.	310,330
			NRGV	goods vehicles	50-75	# of veh.	310,330
			NRPC	passenger cars	58-76	# of veh.	310,320,330
			RPCARS_Y70	price index of passenger cars	63-74	1970=100	57,constructed
			SB	buses and coaches in use	50-75	# of bus	310,320
			SGV	goods vehicles in use	53-75	# of veh.	310,320
			SPC	stock of passenger cars	50-75	thou. cars	300
				% tax of:			
			TDL	diesel fuel	62-74	% of price	310
			TMG	motor gas	62-75	% of price	310

TABLE 4-1

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	TRANS_	WGER_		traffic volume of:			
			TVB	buses	1962-75	mnvehkm	310
			TVGV	goods vehicles	62-75	mnvehkm	310
			TVPC	passenger cars	62-75	mnvehkm	310
				vehicular consumption of:			
			VCDL	diesel fuel	50-74	tcals	32
			VCMG	motor gas	50-75	tcals	32

CHAPTER FIVE

Petroleum Product Demand Data

The product demand data of the World Oil Project data base is the result of an attempt to account for all petroleum consumption in the non-Communist countries and to provide information for an analysis of petroleum consumption.* Unlike the other sections of the data base which contain fuel consumption by sector (residential, industrial, etc.), this section concerns total oil consumption by product. All petroleum products consumed are included for years 1950-1973 or 1974, in addition to prices of fuels, economic activity indicators, temperature, and purchasing power parities.** Where this data was found and how it was transformed for inclusion in the data base will be described. The countries included will be enumerated and the world aggregate regions used will be defined. Following this is a table which alphabetically lists all of the data file names used on the computer, including a brief variable definition, the units, the range of years, and a bibliography number which refers to the bibliography in Chapter Six.

The product demand data is the most straightforward of all the sections of the data base, since it often appears virtually unchanged from the form in which it was published. Very little transformation or manipulation

*The petroleum product demand data was constructed for the purposes of estimation and analysis and also as data inputs for a simulation model.

**All of the data is stored on TROLL, a computer software package which provides a comprehensive environment for creating, estimating, and simulating economic models. TROLL operates at the Information Processing Service at MIT. For more information see Chapter Ten.

of data was required to standardize the information. Quantity data was converted to tcals and prices are expressed in terms of local currency/tcal. Chapters Eight and Nine define tcals and explain the conversion factors used to standardize units.

Countries and World Regions

The Product Demand Data accounts for total world oil consumption excluding the Sino-Soviet area. The following OECD countries are accounted for in the most detail:

Austria	France	Sweden
Australia	Italy	United Kingdom
Belgium	Japan	United States
Canada	Netherlands	West Germany
Denmark	Norway	Turkey
Finland	Spain	

The non-OECD countries which are included are:

Argentina	Mexico
Brazil	South Africa
India	Venezuela

(Figure 5-1)

The remainder of the non-Communist world is dealt with as aggregated regions, according to the UN groupings, with both totals for the regions and as net regions, that is, net of all the countries listed individually above: (next page)

North America	Western Europe
Carribean America	Asia
Other America	Oceania

(Figure 5-2)

Some of these net regions are also aggregated in another way, as two regions, oil exporting countries (OEXP), and net less developed countries (NLDC). Different data files exist for all of these aggregations, which will be described below:

OEXP	NLDC
The Middle East	India
(net Turkey)	Net Africa
Nigeria	Net Asia
Algeria	Net Oceania
Libya	Net Americas
Indonesia	
Mexico	
Venezuela	

(Figure 5-3)

Variables

Demand by Product

Total demand for petroleum was disaggregated into demand by product. For the OECD countries which are included, the following categories were taken from the OECD Energy Statistics 1950-1973, which was chosen for its inclusion of all products for the greatest time period.

Consumption Category	Product	In Data File Name as:
Final Internal Consumption:	aviation gas	FPRAG
	diesel oil	FPRDS
	fuel oil	FPRFO
	jet fuel	FPRJF
	kerosene	FPRKS
	LPG	FPRLG
	motor gas	FPRMG
Industrial Sector Consumption:	fuel oil	FINDPRFO
Domestic Sector Consumption:	fuel oil	FOPRFO
Transformation Sector Consumption:	LPG	TRANPRLG
	fuel oil	TRANPRFO
	crude oil	TRANPCRU
Other:	feedstock	FFDSK
	refinery tail gas	FREFTG
	fuel oil	FOTHPRFO

(Table 5-1)

Note that fuel oil (light and heavy) is included as four consumption categories, industrial, residential, transformation and all "other" sector consumption, because of the varied uses of this product. The category 'final internal consumption of fuel oil' is actually a redundant category because it constitutes industrial, residential and all "other" consumption. It is not used to compute total demand. To obtain a demand total which excludes bunkers and refinery losses, all of the other categories must be included. Japan is the only country which reports crude oil consumption by the transformation sector, but otherwise all of the countries' totals are obtained in the same way.

All of this OECD data was published in units of thousand metric tons. The data was converted to tcals, using the conversion factors in Chapter Eight. The total obtained by adding all of the categories still excludes refinery losses and bunkers. To obtain a total in volumetric terms, convert tcals to millions of barrels per day (MBD), add 9% for refinery losses and 1% for bunkers. The 9% refinery loss is assumed because of the conversion from tcals to a volumetric unit. See Chapter Eight for a discussion of refinery loss.

When the industrial and residential models were incorporated in the simulation model, (See Chapters Two and Three) the data files for industrial and residential consumption had to correspond to the data files used for those models. Different sources and different methods were used for the product demand data, and consequently the 'industrial' and 'domestic' fuel oil categories do not correspond to those used for the industrial and residential models. For those countries involved, the data files for residential and industrial consumption were used and the "other" fuel oil category was adjusted to account for discrepancies between different classifications. (Figure 5-4, next page.)

product demand data, industrial fuel oil*	-	industrial demand data, industrial fuel oil**	=	"remainder" fuel oil***
("country"_SECOND_FINDPRO)		("country"__IND_FINDFPET)		

*This data file in product demand archive
**This data file from industrial archive and used by simulation model
***Added to "other product" category for use by the model

product demand data, domestic fuel oil consumption*	-	residential data, residential fuel oil consumption**	=	"remainder" fuel oil***
("country"_SECOND_FOPRFO)		("country"_TWOTIME_FRESPRFO)		

*This data file in product demand archive
**This data file from residential data archive, used by simulation model
***Added to "other product" category for use by the model

(Figure 5-4)

The table below (next page) shows how the data files, as organized on TROLL, were aggregated for use in the World Oil Project simulation model, and also demonstrates how the files should be manipulated to obtain a petroleum consumption total for an OECD country.

UNITS: tcals

TROLL Archive	Data File
product demand	diesel fuel
product demand	motor gas
industrial demand	industrial fuel
residential demand	residential fuel
product demand	aviation gas
product demand	jet fuel
product demand	kerosene
product demand	feedstocks
product demand	"other" fuel oil
product demand	refinery gas
product demand	transformation fuel oil
product demand	transformation LPG
product demand	transformation crude
product demand (industrial and domestic fuel net the residential and industrial archive fuels)	"remainder" fuel oil

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Total tcals

tcals x 685/365/1,000,000 = MBD

MBD + 10% = final total

(Table 5-2)

The UN publication World Energy Supplies 1950-1974 was used for the rest of the non-Communist world. This UN data was used for the following individual countries: Argentina, Brazil, India, South Africa, South Korea, and Venezuela. The rest of the world, dealt with as total regions, consists of the UN aggregations net of the individual country data to avoid double counting. The UN data was chosen because of the range of years available, but consumption of feedstocks is not available.

World Energy Supplies breaks petroleum product consumption into four categories:

Products	In Data File Name as:
aviation and motor gas	FPRMG
kerosene and jet fuel	FPRKS
distillate and residual fuel oil	FPRFO
LPG	FPRLG

(Figure 5-5)

The regions listed in the 'countries' section are defined in more detail in Table 5-3 below. (Next page)

Table 5-3

UN Region	UN Aggregation Countries	In Data File Name as:
Africa:	Includes every country from South Africa to the Suez Canal, including Egypt	AFR
North America:	Includes Canada, U.S.A., Bermuda, Greenland, St. Pierre, S. Miguelan	NAMR
Central America:	Includes Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Bahamas, Barbados, Columbia, Cuba, Dominica, Haiti, Jamaica, Mexico, Panama, Puerto Rico, Trinidad, U.S. Virgin Islands, Venezuela	CAMR
Other America:	Includes Argentina, Bolivia, Brazil, Chile, Ecuador, Guyana, Paraguay, Peru, Surinam, Uruguay	OAMR
Middle East:	Bahrain, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Saudi Arabia, DM Yemen, Syria, Turkey	MIDE
Far East:	Includes Afghanistan, Bangladesh, Burma, Cambodia, Hong Kong, India, Indonesia, Japan, South Korea, Laos, Macau, West Malaysia, Nepal, Pakistan, Phillippines, Singapore, Thailand, South Vietnam	FARE
Western Europe:	Includes Austria, Belgium, Denmark, Finland, France, West Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom	WEUR

(continued)

Table 5-3, continued

Other Europe:	Includes Gibraltar, Greece, Malta, Spain, Yugoslavia	OEUR
Oceania:	Includes Australia, American Samoa, Fiji, Polynesia, Guam, Samoa, New Zealand, Pacific Islands	OCEN

There is a data file for each of these regions for each of the four categories of consumption. There is also a net region data file for the four categories net of the UN data for the individual countries. The construction of these net regions is shown below with the sources of the data included.

Table 5-4

Region	Definition	Data File Name
Net Africa:	UN Africa, net UN South Africa	EAFR
Net North America:	UN North America, net UN U.S.A. and Canada	ENAMR
Net Central America:	UN Central America, net UN Mexico and Venezuela	ECAMR
Net Other America:	UN Other America, net UN Brazil and Argentina	EOAMR

(continued)

Table 5-4, continued

Net Far East:	UN Far East, net UN Japan	EFARE
Net Middle East:	UN Middle East, net UN Turkey	EMIDE
Net Other Europe:	UN Other Europe, net UN Spain	EOEUR
Net Western Europe:	UN Western Europe, net UN Austria, Belgium, Denmark, Finland, France, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom and West Germany	EWEUR
Net Oceania:	UN Oceania, net UN Australia	EOCEN

It can be seen that wherever possible OECD data was used. The UN data for consumption is not the optimal source for consumption data, lacking feedstocks, and does not compare favorably with other international sources of consumption data, such as the Bureau of Mines.

Because of this problem, an alternative set of remaining world regions from a different source, the Bureau of Mines, was constructed. From the International Petroleum Annual, two regions of oil consumption were constructed, oil exporting countries (OEXP) and net less developed countries (NLDC). (Figure 5-6, next page.)

Bureau of Mines Data, Alternative Aggregation

OEXP: Middle East (excluding Turkey), Algeria, Indonesia, Libya, Mexico, Nigeria, Venezuela

NLDC: India, Net Africa (net OEXP countries and South Africa), Net Asia (net Japan), Net Oceania (net Australia), Net Americas (net Canada, U.S., Mexico, Venezuela)

(Figure 5-6)

Economic Activity Indicators and Deflators

For OECD countries OECD National Accounts was used. GDP in current and constant local currency was collected and stored on TROLL in the product demand section. The data file mnemonic name is "country"_GDP_LC for the current currency series and "country"_GDP_LC_Y58, Y63, Y70, for the constant series. The constant series has a base year which is reflected in the file name. The base year indicates that the information is reported in terms of the currency of that year, therefore non-inflated currency. An implicit price index was then constructed, using the current and constant series. An implicit price index, base year 1970=100, was computed for all the OECD countries. There are also data files in current and constant units for total private consumption expenditure, NEX1_LC or NEX1_LC_YNN, in addition to a constructed price index "country"_Y70_NEXI. There are also data files for disposable income, in

nominal currency, data file name "country"_NDI_LC.

For the remaining countries, Argentina, Brazil, India, Mexico, South Africa and Venezuela, UN National Accounts was used for the same data series, gdp and private consumption expenditure in current and constant units.

Population

Population data for all countries was collected from the UN Demographic Yearbook. The unit of measurement is millions and the range of years is 1950-1974.

Temperature

Temperature data for 1950-1974 was collected for all countries from the American Meteorological Association's Monthly Climatic Data for the World. The temperature is the average of the five coldest months measured in degrees Fahrenheit. Data was collected for the capital city, or in cases of large or climatically diverse countries, for the major population centers.

Prices of Petroleum Products

For most of the data series the range of the observations usually covers years 1950-1973 or 1974, but prices are the exception. To obtain a consistent set of average annual prices for a variety of retail and wholesale products has not been possible. The price information for developed countries is more available and reliable than the information for developing countries. There are also problems posed by prices that

are quoted for a country that has large fluctuations in its currency value. This can be compounded by prices being quoted in U.S. dollars, and not local currency. In some cases we have compiled and stored as data files on TROLL two different price series for the same product, same country. This is because it was found that two different sources quoted contradictory prices and the validity of one over the other could not be established.

Retail and wholesale prices of all petroleum products and their substitutes, such as coal, natural gas and electricity, were collected. For European countries, Canada and the U.S., Japan and Australia, the IEA, the FEA, the Edison Electric Institute, and Canada's Energy Databank were used. The Basic Petroleum Data Book also contained price information, as did the President's Economic Report and the United Kingdom Digest of Energy Statistics.

Price information for developing countries seems to be characterized mainly by its scarcity. In all cases we were looking for a complete range of prices in addition to reliability of source. Some of the sources finally used for developing countries are: The International Petroleum Annual for gasoline, diesel oil, fuel oil and Bunker "C", and Americas en Cifras, and Exxon. National statistical yearbooks were useful for some countries, Annuario Estadistico for Mexico, Statistiches Bundesamt yielded prices for Germany as well as other countries, and Norwegian yearbooks. The FEA also provided us with some unpublished fuel prices and fuel price indices.

All price units were converted to tcals. Most are stored in local currency/tcal. Some data files are in US dollars/tcal, as the method of

original conversion from local currency to U.S. dollars is not known.

Although the units in the TROLL data files are usually local currency, these are converted to 1970 U.S. dollars for analysis. This is done with the use of purchasing power parities and price deflators. When purchasing power parities are not available, exchange rates are used. Although the PPP's are a constant 1970 value, they are stored as time series, 1950-1974, for convenient use with the other time series. For a discussion of purchasing power parities, see Chapter Nine.

Some examples of data file names for fuel prices follow:

retail price	
electricity	"country"_SRETELEC_LC
gas	"country"_SRETGAS_LC

(Figure 5-7)

If the data is not in local currency, the name does not contain '_LC'. If there is more than one file for the same price, the file name is '_1' or '_2' at the end.

Example: BRAZ_SRETELEC_1
BRAZ_SRETELEC_2

(Figure 5-8)

The wholesale or industrial prices have the same name format, except the 'SRET' part of the name is replaced by 'SWH' for wholesale and 'SIND' for industrial. An index is indicated with 'IWH' or 'IRET'.

Tables

Examples of data file names which are also mnemonics for the variables have been included in the above text. The following table, Table 5-5, is an alphabetical listing of all of the data file names in this section of the database. Note that all of the product data files are stored in the section or archive "second". This means that all data file names are preceded be the letters "second". For an index of terms and data file names and an explanation of TROLL data file naming conventions see Chapter Seven.

Included in the following table is information on the range of years for each file, the units, the definition, and a bibliography code number that refers to the bibliography in Chapter Six.

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	AFR_		total consumption:			
			FPRFO	fuel oil	1950-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
				production:			
			PFDSK	feedstocks	50-74	th.met.tons	207
		ARG_	BA_ TEMP	temperature, Buenos Aires	54-58, 67-75	degrees F	66
			COR_ TEMP	temperature, Cordoba	54-75	degrees F	66
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			FPRTOT	total petroleum	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	ARG_		index:			
			IGDP_ Y60	gdp, base year '60	1953-72	1960=100	36
			IRETPRTO_ Y70	retail price, all fuels, base year '70	62,64-72	1970=100	constructed
			IRETT_ Y70	retail price index, base year '70	62,64-73	1970=100	36
			NGNP_ LC	gross national product	53-72	mnPesos	57,86
			LC_Y60	base year '60	53-72	1960=100	constructed
				production:			
			PFDSK	feedstocks	50-74	th.met.tons	207
			POP	population	50-74	millions	92
			ROS_ TEMP	temperature, Rosario	54-75	degrees F	66
				retail price:			
			SRETCOAL_ LC	coal	62,64-73	pesos/tcal	36
			LC_Y60	base year '60	62,64-73	'60pesos/tcal	constructed
			SRETELEC_ LC	electricity	62,64-73	pesos/tcal	36
			LC_Y60	base year '60	62,64-73	'60pesos/tcal	constructed
			SRETGAS_ LC	gas	62,64-73	pesos/tcal	36
			LC_Y60	base year '60	62,64-73	'60pesos/tcal	36

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	ARG_	SRETPRFO_ LC	fuel oil	62,64-73	pesos/tcal	36
			LC_Y60	base year '60	62,64-73	'60pesos/tcal	constructed
		AUSL_	CAN_ TEMP	temperature, Canberra	54-75	degrees F	66
				consumption:			
			FFDSK	feedstocks	59-73	th.met.tons	32
			FINDPRFO	ind. fuel oil	59-73	th.met.tons	32
			FOPRFO	dom. fuel oil	59-73	th.met.tons	32
			FOTHPRFO	remain. fuel oil	59-73	th.met.tons	32
			FPRAG	aviation fuel	59-73	th.met.tons	32
			FPRDS	diesel fuel	59-73	th.met.tons	32
			FPRFO	all fuel oil	59-73	th.met.tons	32
			FPRFO_ 2	all fuel oil, diesel	50-74	th.met.tons	207
			FPRJF	jet fuel	59-73	th.met.tons	32
			FPRKS	kerosene	59-73	th.met.tons	32
			FPRKS_ 2	kerosene and jet	50-74	mn.met.tons	207
			FPRLG	LPG	59-73	th.met.tons	32
			FPRLG_ 2	LPG	50-74	mn.met.tons	207
			FPRMG	motor gas	59-73	th.met.tons	32
			FPRMG_ 2	motor gas and aviation	50-74	mn.met.tons	207
			FREFTG	refinery tail gas	59-73	th.met.tons	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	AUSL_	GDP_ LC	gross domestic product	55-74	mn.Ausl $	32
			IGDP Y70	index, gross domestic product	60-74	1970=100	32
			INEX1_ Y70	index, private consumption exp.	60-74	1970=100	32
			MEL_ TEMP	temperature, Melbourne	54-60	degrees F	66
			NDI_ LC	private disposable income	61-74	mn.Ausl $	32
			NEX1_ LC	private consumption expenditure	55-74	mn.Ausl $	32
			NGNP_ LC	gross national product	53-73	mn.Ausl $	57,32
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92
			SINDPRFO	industrial price, fuel oil	55,60, 65,69	US$/tcal	268
			SRETPRBC	price, Bunker "C"	70-75	US$/tcal	224
				retail price:			
			SRETPRDS	diesel fuel	55,60, 65,69	US$/tcal	268
			SRETPRFO_ 1	fuel oil	75	US$/tcal	224
			2	fuel oil	55,60, 65,69	US$/tcal	268
			SRETPRKS	kerosene	54,57, 60-62 64,65, 70-75	US$/tcal	224

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	AUSL_		retail price:			
			SRETPRMP	prem. motor fuel	57,61-65, 70-75	US$/tcal	224
			SRETPRMR	reg. motor fuel	54,57,58, 61-65, 70-75	US$/tcal	224
			SYD_ TEMP	temperature, Sydney	54-75	degrees F	66
			TIPCRU	total internal consumption, crude	59-73	th.met.tons	32
				for transformation:			
			TRANPRFO	fuel oil	59-73	th.met.tons	32
			TRANPRLG	LPG	59-73	th.met.tons	32
		AUST_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	ind. fuel oil	50-73	tcals	32
			FOPRFO	dom. fuel oil	50-73	tcals	32
			FOTHPRFO	"other" fuel oil	50-73	th.met.tons	32
			FPCRU	crude	50-73	th.met.tons	32
			FPRAG	aviation gas	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	fuel oil	50-73	th.met.tons	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	AUST_			consumption:			
			FPRFO_	2	fuel oil, diesel	50-74	tcals	207
			FPRJF		jet fuel	50-73	tcals	32
			FPRKS		kerosene	50-73	tcals	32
			FPRKS_	2	kerosene, jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas, aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mn.Aust.Sch.	32
			IGDP_	Y63	index, gdp, base '63	55-69	1963=100	32
				Y70	base '70	55-74	1970=100	32
					private consumption expenditure:			
			INEX1_	Y63	base '63	55-69	1963=100	32
				Y70	base '70	55-74	1970=100	32
			NDI_	LC	private disposable income	55-74	mn.Aust.Sch.	32
			NGNP_	LC	gross national product	53-73	mn.Aust.Sch.	57

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	AUST_	PFDSK	production, feedstocks	1955-74	th.met.tons	207
			PFDSK_ 2	feedstocks	55-74	th.met.tons	207
			POP	population	50-74	millions	92
			TIPCRU	total internal consumption, crude	50-73	th.met.tons	32
				for transformation:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
			VIEN_ TEMP	temperature, Vienna	60-75	degrees F	66
		BELG_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	"other" fuel oil	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	all fuel oil	50-73	th.met.tons	32
			FPRFO_ 2	all fuel oil, diesel	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	BELG_			consumption:			
			FPRJF		jet fuel	1950-73	tcals	32
			FPRKS		kerosene	50-73	tcals	32
			FPRKS_	2	kerosene, jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas, aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP	LC	gross domestic product	55-74	mn.Francs	32
			IGDP_	Y63	index, gdp, base '63	55-68	1963=100	32
				Y70	base '70	55-74	1970=100	32
					private consumption expenditure:			
			INEX1_	Y63	base'63	55-68	1963=100	32
				Y70	base '70	55-74	1970=100	32
			NDI_	LC	private disposable income	53-74	mn.FB	32
			NEX1_	LC	total private consumption exp.	55-74	mn.FB	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	BELG_	PFDSK		production, feedstocks	1950-74	th.met.tons	207
			PFDSK_	2	feedstocks	50-74	th.met.tons	207
			POP		population	50-74	millions	92
			TEMP		temperature	55-75	degrees F	66
					for transformation:			
			TRANPRFO		fuel oil	50-73	th.met.tons	32
			TRANPRLG		LPG	50-73	th.met.tons	32
		BRAZ_			consumption:			
			FPRFO		all fuel oil	50-74	tcals	207
			FPRKS		kerosene	50-74	tcals	207
			FPRLG		LPG	50-74	tcals	207
			FPRMG		motor gas	50-74	tcals	207
			FPRTOT		total petroleum	50-74	tcals	207
			IGDP_	Y53	index, gdp, base '53	53-71	1953=100	57,86
			NGNP_	LC	gnp	53-73	mn.Cruzeiros	57,86
				LC_Y53	gnp, base '53	53-71	1953=100	constructed
			PFDSK		production, feedstocks	50-74	th.met.tons	207
			POP		population	50-74	millions	92

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	BRAZ_	RIO_ TEMP	temperature, Rio de Janeiro	1954-75	degrees F	66
			SP_ TEMP	temperature, Sao Paulo	54-58, 59-75	degrees F	66
				retail price:			
			SRETGAS_ LC	gas	66-75	new Cruz/tcal	223
			LC_Y53	gas, base '53	66-71	'53 Cruz/tcal	constructed
			SRETPRAG_ LC	aviation fuel	74-75	new Cruz/tcal	223
			SRETPRBC	Bunker "C"	70-75	US$/tcal	224
			SRETPRDS_ LC	diesel fuel	54-75	new Cruz/tcal	223
			SRETPRFO_ LC	fuel oil	54-75	new Cruz/tcal	223
			LC_Y53	fuel oil, base '53	54-71	'53 Cruz/tcal	constructed
			SRETPRJF_ LC	jet fuel	74-75	new Cruz/tcal	223
			SRETPRKS_ LC	kerosene	54-71	new Cruz/tcal	223
			LC_Y53	kerosene, base '53	54-71	'53 Cruz/tcal	constructed
			SRETPRLG_ LC	LPG	56-75	new Cruz/tcal	223
			LC_Y53	LPG, base '53	54-71	'53 Cruz/tcal	constructed
			SRETPRMP_ LC	premium motor fuel	57-75	new Cruz/tcal	223
			SRETPRMR_ LC	regular motor fuel	54-75	new Cruz/tcal	223
			LC_Y53	regular motor fuel, base '53	54-71	'53 Cruz/tcal	constructed

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	CAMR_		consumption:			
			FPRFO	fuel oil	1950-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	tcals	207
		CAN_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum prod.	50-73	th.met.tons	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all "other" fuel oil	50-73	th.met.tons	32
			FPRAG	aviation gas	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	all fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	CAN_		consumption:			
			FPRKS	kerosene	1950-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207
			FPRLG	LPG	50-73	tcals	32
			FPRLG_ 2	LPG	50-74	tcals	207
			FPRMG	motor gas	50-73	tcals	32
			FPRMG_ 2	motor gas and aviation	50-74	tcals	207
			FREFTG	refinery tail gas	50-73	th.met.tons	32
			GDP_ LC	gross domestic product	55-74	mnCan$	32
			IGDP_ Y63	index, gdp, base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
				private consumption expenditure:			
			INEX1_ Y63	base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			MON_ TEMP	temperature, Montreal	54-75	degrees F	66
			NDI_ LC	private disposable income	50-74	mnCan$	32
			NEX1_ LC	private consumption expenditure	55-74	mnCan$	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	CAN_	PFDSK	production, feedstocks	1950-74	th.met.tons	207
			PFDSK_ 2	feedstocks	50-74	th.met.tons	207
			POP	population	50-74	millions	92
			TOR_ TEMP	temperature, Toronto	55-73	degrees F	66
				for transformation:			
			TRANPRFO	fuel oil	59-73	th.met.tons	32
			TRANPRLG	LPG	55-73	th.met.tons	32
			VAN_ TEMP	temperature, Vancouver	54-74	degrees F	66
		DEN_	COP_ TEMP	temperature, Copenhagen	54-75	degrees F	66
				consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	"other" fuel oil	50-73	th.met.tons	32
			FPCRU	crude	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	all fuel oil	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	DEN_			consumption:			
			FPRFO_	2	all fuel oil, diesel	1950-74	tcals	207
			FPRJF		jet fuel	50-73	tcals	32
			FPRKS		kerosene	50-73	tcals	32
			PFRKS_	2	kerosene and jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnKroner	32
			IGDP_	Y63	index, gdp, base year '63	55-69	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-69	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			NDI_	LC	private disposable income	55-74	mnKroner	32
			NEX1_	LC	private consumption expenditure	55-74	mnKroner	32
			NGNP_	LC	gross national product	53-73	mnKroner	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	DEN_	PFDSK	production, feedstocks	1950-73	mn.met.tons	207
			PFDSK_ 2	feedstocks	50-73	mn.met.tons	207
			POP	population	50-74	millions	92
			TIGLIQ	total consumption, liquified gas	50-73	th.met.tons	32
			TIPCRU	crude	50-73	th.met.tons	32
				for transformation:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		EAFR_		African Continent, excluding South Africa			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		ECAMR_		Caribbean America, excluding Mexico & Venezuela			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	ECAMR_		consumption:			
			FPRKS	kerosene	1950-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		EFARE_		Far East, excluding Japan, India, South Korea			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		EMIDE_		Middle East, excluding Turkey			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	ENAMR_		North America, excluding USA, Canada			
				consumption:			
			FPRFO	fuel oil	1950-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		EOAMR_		Other America, excluding Brazil, Argentina			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		EOCEN_		Oceania, excluding Australia			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	EOCEN_		consumption:			
			FPRLG	LPG	1950-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		EOEUR_		Other Europe, excluding Spain			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		ESAMR_		South America, total of EOAMR,ECAMR			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			FPRTOT	total consumption	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	EWEUR_		Western Europe, excluding Austria, Belgium, Denmark, Finland, France, Italy, Netherlands, Norway, Sweden, Switzerland, U.K., W. Germany			
				consumption:			
			FPRFO	fuel oil	1950-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
		FARE		Far East, including Afghanistan, Bangladesh, Burma, Cambodia, Hong Kong, India, Indonesia, Japan, South Korea, Laos, Macau, West Malaysia, Nepal, Pakistan, Phillippines, Singapore, Thailand, South Vietnam			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	FIN_		consumption:			
			FFDSK	feedstocks	1950-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	"other" fuel oil	50-73	th.met.tons	32
			FPCRU	crude	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	all fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	59-73	tcals	32
			FPRKS	kerosene	59-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207
			FPRLG	LPG	50-73	tcals	32
			FPRLG_ 2	LPG	50-74	tcals	207
			FPRMG	motor gas	50-73	tcals	32
			FPRMG_ 2	motor gas and aviation	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	FIN _		consumption:			
			FREFTG	refinery tail gas	1950-73	th.met.tons	32
			GDP_ LC	gross domestic product	55-74	mnMaarka	32
			HELS_ TEMP	temperature, Helsinki	54-75	degrees F	66
			IGDP_ Y63	index, gdp, base year '63	55-69	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			INEX1_	index, private consumption exp.:			
			Y63	base year '63	55-69	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			NDI_ LC	private disposable income	55-74	mnMaarka	32
			NEX1_ LC	private consumption expenditure	55-74	mnMaarka	32
			NGNP_ LC	gross national product	53-74	mnMaarka	32
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			PFDSK_ 2	feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92
				total internal consumption:			
			TIGLIQ	liquified gas	59-73	th.met.tons	32
			TIPCRU	crude	59-73	th.met.tons	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	FIN_		for transformation:			
			TRANPRFO	fuel oil	1958-73	th.met.tons	32
			TRANPRLG	LPG	58-73	th.met.tons	32
		FRAN_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	"other" fuel oil	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	all fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207
			FPRLG	LPG	50-73	tcals	32
			FPRLG_ 2	LPG	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	FRAN_		consumption:			
			FPRMG	motor gas	1950-73	tcals	32
			FPRMG_ 2	motor gas and aviation	50-74	tcals	207
			FREFTG	refinery tail gas	50-73	th.met.tons	32
			GDP_ LC	gross domestic product	55-74	mnFfr	32
			IGDP_ Y63	index, gdp, base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			INEX1_	index, private consumption exp.:			
			Y63	base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			MARS_ TEMP	temperature, Marseille	56-75	degrees F	66
			NDI_ LC	private disposable income	50-74	mnFfr	32
			NEX1_ LC	private consumption expenditure	55-74	mnFfr	32
			PARIS_ TEMP	temperature, Paris	55-75	degrees F	66
			PFDSK	production, feedstocks	50-74	th.met.tons	207
			PFDSK_ 2	feedstocks	50-74	th.met.tons	207
			POP	population	50-74	millions	92

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	FRAN_		for transformation:			
			TRANPRFO	fuel oil	1950-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		GREC_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPREF	refinery fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRLG	LPG	50-73	tcals	32
			FPRMG	motor gas	50-73	tcals	32
			FREFTG	refinery tail gas	50-73	th.met.tons	32
			POP	population	50-74	millions	92

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	GREC_		total internal consumption:			
			TIPCRU	crude oil	1950-73	th.met.tons	32
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		IRE_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPREF	refinery fuel	50-73	th.met.tons	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRLG	LPG	50-73	tcals	32
			FPRMG	motor gas	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	IRE_		consumption:			
			FREFTG	refinery tail gas	1950-73	th.met.tons	32
			POP	population	50-74	millions	92
				total internal consumption:			
			TIPCRU	crude oil	50-73	th.met.tons	32
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-74	th.met.tons	32
		INDI_	BOM_ TEMP	temperature, Bombay	54-75	degrees F	66
			CALC_ TEMP	temperature, Calcutta	54-75	degrees F	66
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			IGDP_ Y70	index, gdp, base year '70	58-75	1970=100	57
				index, retail price:			
			IRETPRDS_ Y61.5	diesel fuel	55-74	61-62=100	223
			IRETPRMG_ Y61.5	motor gas	55-75	61-62=100	223

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	INDI_	ND_ TEMP	temperature, New Delhi	1959-75	degrees F	66
			NGNP_ LC	gross national product	53-73	mnRupees	57
			PFDSK	production, feedstocks	50-74	th.met.tons	207
			POP	population	50-74	millions	92
				retail price:			
			SRETPRKS	kerosene	56-65, 70-75	US¢/gallon	224
			SRETPRLG_ LC	LPG	60-75	Rupees/Kg	223
			SRETPRMP_ LC	premium motor fuel	63,64, 70-75	US¢/gallon	224
			2		66-69	1970Rupees/gal.	223
			SRETPRMR_ LC	regular motor fuel	54,57-65, 70-75	US¢/gallon	224
		ITAL_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	ITAL_		consumption:			
			FPRDS	diesel fuel	1950-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	32
			FPRLG_ 2	LPG	50-74	tcals	207
			FPRMG	motor gas	50-73	tcals	32
			FPRMG_ 2	motor gas and aviation	50-74	tcals	207
			FREFTG	refinery tail gas	50-73	tcals	32
			GDP LC	gross domestic product	55-74	mnLira	32
			IGDP_ Y63	index, gdp, base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			INEX1_	index, private consumption exp.:			
			Y63	base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32

TABLE 5-5

FILE TYPE	ARCHIVE-NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	ITAL_	NDI_	LC	private disposable income	1951-74	mnLira	32
			NEXI_	LC	private consumption expenditure	55-74	mnLira	32
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			PFDSK_	2	feedstocks	50-74	mn.met.tons	207
			POP		population	50-74	millions	92
			TEMP		temperature, Rome	55-75	degrees F	66
					transformation sector:			
			TRANPRFO		fuel oil	50-73	th.met.tons	32
			TRANPRLG		LPG	50-74	th.met.tons	32
		JAP_			consumption:			
			FFDSK		feedstocks	50-73	th.met.tons	32
			FINDPRFO		industrial fuel oil	50-73	tcals	32
			FOPET		all other petroleum products consumed	50-73	tcals	32
			FOPRFO		domestic fuel oil	50-73	tcals	32
			FOTHPRFO		all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG		aviation fuel	50-73	tcals	32
			FPRDS		diesel fuel	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	JAP_			consumption:			
			FPRFO		total fuel oil	1950-73	tcals	32
			FPRFO_	2	all fuel oil and diesel	50-74	tcals	207
			FPRJF		jet fuel	50-73	tcals	32
			FPRKS		kerosene	50-73	tcals	32
			FPRKS_	2	kerosene and jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnYen	32
			IGDP_	Y63	index, gdp, base year '63	55-67	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			NDI_	LC	private disposable income	51-74	mnYen	32
			NEX1_	LC	private consumption expenditure	55-74	mnYen	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	JAP_	PFDSK	production, feedstocks	1950-74	mn.met.tons	207
			PFDSK_ 2	feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92
			TEMP	temperature, Tokyo	55-75	degrees F	66
				transformation sector:			
			TRANPRFO	fuel oil	59-73	th.met.tons	32
			TRANPRLG	LPG	59-73	th.met.tons	32
		MEX_		consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			FPRTOT	total consumption	50-74	tcals	207
			GUAD_ TEMP	temperature, Guadalajara	54,57, 59-75	degrees F	66
			IGDP_ Y70	index, gdp, base year '70	58-75	1970=100	57
			IRETT_ Y70	index, total retail price	62-73	1970=100	36
			MEX_ TEMP	temperature, Mexico City	54,69 70,74, 75	degrees F	66

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	MEX_	NGNP_	LC	gross national product	1953-73	mnPesos	57,86
				Y70		58-73	mn1970Pesos	constructed
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			POP		population	50-74	millions	92
					price:			
			SINDCOAL_	LC	industrial coal	63-74	Pesos/tcal	223
				LC_Y70	in constant pesos	63-74	'70Pesos/tcal	constructed
			SINDGAS_	LC	industrial gas	63-74	Pesos/tcal	223
				LC_Y70	in constant pesos	63-74	'70Pesos/tcal	constructed
					retail price:			
			SRETELEC_	LC	electricity	58-72	Pesos/tcal	223
				LC_Y70	in constant pesos	58-72	'70Pesos/tcal	constructed
			SRETGAS_	LC 1	natural gas	58-63	Pesos/tcal	225
				2	natural gas	64-74	Pesos/tcal	223
			SRETPRAG_	LC	aviation fuel	62-74	Pesos/tcal	223
			SRETPRBC_	LC	Bunker "C"	61-74	Pesos/tcal	223
			SRETPRDS_	LC	diesel fuel	60-74	Pesos/tcal	223
			SRETPRFO	LC	fuel oil	61-74	Pesos/tcal	223
				LC_Y70	in constant pesos	61-74	'70Pesos/tcal	constructed

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	MEX_		retail price:			
			SRETPRJF	jet fuel	1963-74	Pesos/liter	223
			SRETPRJF_LC	jet fuel	63-74	Pesos/tcal	223
			SRETPRKS _LC	kerosene	50-74	Pesos/tcal	223
			LC_Y70	in constant pesos	50-74	'70Pesos/tcal	223
			SRETPRLG_LC	LPG	62-74	Pesos/tcal	223
			LC_Y70	in constant pesos	62-74	'70Pesos/tcal	223
			SRETPRMP_LC	premium gasoline	56,57, 60-75	Pesos/tcal	223
			SRETPRMR_LC	regular gasoline	56,57, 60-75	Pesos/tcal	223
			LC_Y70	in constant pesos	60-65	'70Pesos/tcal	223
		MIDE_		consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	NAMR_		consumption:			
			FPRFO	fuel oil	1950-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
		NETH_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA	SECOND_	NETH_			consumption:			
			FPRKS		kerosene	1950-73	tcals	32
			FPRKS_	2	kerosene and jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnGuilders	32
			IGDP_	Y63	index, gdp, base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			NDI_	LC	private disposable income	50-74	mnGuilders	32
			NEX1_	LC	private consumption expenditure	55-74	mnGuilders	32
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			PFDSK_	2	feedstocks	50-74	mn.met.tons	207
			POP		population	50-74	millions	92

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	NETH_	TEMP	temperature	1955-75	degrees F	66
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		NOR_		consumption:			
			FFDSK	feedstocks	50-73	tcals	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	NOR_			consumption:			
			FPRLG		LPG	1950-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnKroner	32
			IGDP_	Y63	index, gdp, base year '63	55-69	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			NDI_	LC	private disposable income	55-74	mnKroner	32
			NEX1_	LC	private consumption expenditure	55-74	mnKroner	32
			PFDSK_	2	production, feedstocks	50-74	mn.met.tons	207
			POP		population	50-74	millions	92
			TEMP		temperature, Oslo	55-75	degrees F	66

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	NOR_		transformation sector:			
			TRANPRFO	fuel oil	1950-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		OAMR_		other America			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
		OCEN		Oceania			
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	OEUR_		other Europe			
				consumption:			
			FPRFO	fuel oil	1950-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
		SAFR_	CAPT_ TEMP	winter temperature, Cape Town	54-57, 67-75	degrees F	66
				consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	50-74	tcals	207
			FPRLG	LPG	50-74	tcals	207
			FPRMG	motor gas	50-74	tcals	207
			GDP_ LC	gross domestic product	54-73	mnRand	57
			IGDP_ Y70	index, gdp, base year '70	54-73	1970=100	57
			KIMB_ TEMP	winter temperature, Kimberly	54-74	degrees F	66
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SAFR_	PRET_ TEMP	winter temperature, Pretoria	1954-75	degrees F	66
				retail price:			
			SRETCOAL_ LC	coal	65-73	SA¢/tcals	223
			SRETELEC_ LC	electricity	66-73	SA¢/tcals	223
			SRETPRBC	Bunker "C"	70,71, 73-75	US$/tcals	224
			SRETPRFO	fuel oil	75	US$/tcals	224
			SRETPRKS_ LC	kerosene	65-73	SA¢/tcals	223
			SRETPRMP_ LC	premium gas	60,61, 63-73	SA¢/tcals	223
			SRETPRMR_ LC	regular gas	61, 63-73	SA¢/tcals	223
				wholesale price:			
			SWHCOAL_ LC	coal	65-69	SA¢/tcals	223
			SWHPRDS_ LC	diesel	65-69	SA¢/tcals	223
			SWHPRFO_ LC	furnace oil	65-69	SA¢/tcals	223
			SWHPRKS_ LC	kerosene	65-73	SA¢/tcals	223
		SKOR_		consumption:			
			FPRFO	fuel oil	50-74	tcals	207
			FPRKS	kerosene	56-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SKOR_		consumption:			
			FPRLG	LPG	1950-74	tcals	32
			FPRMG	motor gas	50-74	tcals	32
			NGNP	gross national product	53-73	mnWon	57
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			POP	population	55-73	millions	92
		SPAN_	BAR_ TEMP	winter temperature, Barcelona	54-75	degrees F	66
				production:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SPAN_			consumption:			
			FPRKS_	2	kerosene and jet	1950-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FRETFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnPesetas	32
			IGDP_	Y63	index, gdp, base year '63	55-69	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-69	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			MAD_ TEMP		winter temperature, Madrid	54-75	degrees F	66
			NDI_	LC	private disposable income	55-74	mnPesetas	32
			NEX1_	LC	private consumption expenditure	55-73	mnPesetas	32
			NGNP_	LC	gross national product	53-73	mnPesetas	57
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			PFDSK_	2	feedstocks	50-74	mn.met.tons	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SPAN_	POP	population	1950-74	millions	92
				total internal consumption:			
			TIPCRU	crude oil	50-73	th.met.tons	32
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		SWED_		consumption:			
			FFDSK	feedstocks	50-73	tcals	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SWED_			consumption:			
			FPRKS		kerosene	1950-73	tcals	32
			FPRKS_	2	kerosene and jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnKroner	32
			IGDP_	Y63	index, gdp, base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			NDI_	LC	private disposable income	55-74	mnKroner	32
			NEX1_	LC	private consumption expenditure	55-74	mnKroner	32
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			PFDSK_	2	feedstocks	50-74	mn.met.tons	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SWED_	POP	population	1950-74	millions	92
			TEMP	temperature, Stockholm	55-74	degrees F	66
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		SWIT_		consumption:			
			FFDSK	feedstocks	50-73	tcals	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPCRU	crude oil	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRFO_ 2	all fuel oil and diesel	50-74	tcals	207
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SWIT_		consumption:			
			FPRLG	LPG	1950-73	tcals	32
			FPRLG_ 2	LPG	50-74	tcals	207
			FPRMG	motor gas	50-73	tcals	32
			FPRMG_ 2	motor gas and aviation	50-74	tcals	207
			FREFTG	refinery tail gas	50-73	th.met.tons	32
			GDP_ LC	gross domestic product	55-74	mnSfr	32
			IGDP_ Y63	index, gdp, base year '63	55-69	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			INEX1_	index, private consumption exp.:			
			Y63	base year '63	55-69	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			NDI_ LC	private disposable income	55-74	mnSfr	32
			NEX1_ LC	private consumption expenditure	55-74	mnSfr	32
			NGNP_ LC	gross national product	53-73	mnSfr	57
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			PFDSK_ 2	feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	SWIT_		total internal consumption:			
			TIPCRU	crude oil	1950-73	th.met.tons	32
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
			ZUR_ TEMP	winter temperature, Zurich	54-75	degrees F	66
		TURK_	ANK_ TEMP	winter temperature, Ankara	54-75	degrees F	66
				consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPCRU	crude oil	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	TURK_			consumption:			
			FPRLG		LPG	1950-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	th.met.tons	32
			GDP_	LC	gross domestic product	55-74	mnLira	32
			IGDP_	Y63	index, gdp, base year '63	55-69	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	62-70	1963=100	32
				Y70	base year '70	60-74	1970=100	32
			IS_ TEMP		winter temperature, Istanbul	54-75	degrees F	66
			NEX1_	LC	private consumption expenditure	55-74	mnLira	32
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			PFDSK_	2	feedstocks	50-74	mn.met.tons	207
			POP		population	50-74	millions	92
			TIPCRU		total internal consumption, crude oil	50-73	th.met.tons	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	TURK_		transformation sector:			
			TRANPRFO	fuel oil	1950-73	th.met.tons	32
			FRANPRLG	LPG	50-73	th.met.tons	32
		UK_		consumption:			
			FFDSK	feedstocks	50-73	tcals	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPFRO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32
			FPRFO	total fuel oil	50-73	tcals	32
			FPRJF	jet fuel	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRKS_ 2	kerosene and jet	50-74	tcals	207
			FPRLG	LPG	50-73	tcals	32
			FPRLG_ 2	LPG	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	UK_			consumption:			
			FPRMG		motor gas	1950-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207
			FREFTG		refinery tail gas	50-73	tcals	32
			GDP_	LC	gross domestic product	55-74	mnPounds	32
			IGDP_	Y63	index, gdp, base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			INEX1_		index, private consumption exp.:			
				Y63	base year '63	55-68	1963=100	32
				Y70	base year '70	55-74	1970=100	32
			NDI_	LC	private disposable income	53-74	mnPounds	32
			NEX1_	LC	private consumption expenditure	55-74	mnPounds	32
			PFDSK		production, feedstocks	50-74	mn.met.tons	207
			PFDSK_	2	feedstocks	50-74	mn.met.tons	207
			POP		population	51-74	millions	92
			TEMP		winter temperature, Kew	55-75	degrees F	66
					transformation sector:			
			TRANPRFO		fuel oil	50-73	th.met.tons	32
			TRANPRLG		LPG	50-73	th.met.tons	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME		VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	USA_	CHICAGO_	TEMP	winter temperature, Chicago	1955-75	degrees F	66
					consumption:			
			FFDSK		feedstocks	50-73	th.met.tons	32
			FINDPRFO		industrial fuel oil	50-73	tcals	32
			FOPET		all other petroleum products consumed	50-73	tcals	32
			FOPRFO		domestic fuel oil	50-73	tcals	32
			FOTHPRFO		all other fuel oil, final consumption	50-73	th.met.tons	32
			FPRAG		aviation fuel	50-73	tcals	32
			FPRDS		diesel fuel	50-73	tcals	32
			FPRFO		total fuel oil	50-73	tcals	32
			FPRFO_	2	all fuel oil and diesel	50-74	tcals	207
			FPRJF		jet fuel	50-73	tcals	32
			FPRKS		kerosene	50-73	tcals	32
			FPRKS_	2	kerosene and jet	50-74	tcals	207
			FPRLG		LPG	50-73	tcals	32
			FPRLG_	2	LPG	50-74	tcals	207
			FPRMG		motor gas	50-73	tcals	32
			FPRMG_	2	motor gas and aviation	50-74	tcals	207

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	USA_		consumption:			
			FREFTG	refinery tail gas	1950-73	th.met.tons	32
			GDP_ LC	gross domestic product	55-75	mnDollars	32
			IGDP_ Y63	index, gdp, base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			INEX1_	index, private consumption exp.:			
			Y63	base year '63	55-68	1963=100	32
			Y70	base year '70	55-74	1970=100	32
			NDI_ LC	private disposable income	50-74	mnDollars	32,79
			NEX1_ LC	private consumption expenditure	55-74	mnDollars	32
			NYC_ TEMP	winter temperature, New York City	55-75	degrees F	66
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			PFDSK_ 2	feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92
			SANDIEGO_ TEMP	winter temperature, San Diego	55-75	degrees F	66
				price:			
			SINDCOAL_ LC	industrial coal	54-57, 59-74	US$/tcal	46
			SINDELEC_ LC	industrial electricity	56-74	US$/tcal	64

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	USA_		price:			
			SINDGAS_ LC	industrial gas	1954-57, 59-74	US$/tcal	64
				retail price:			
			SRETCOLH_ LC	coal	60-74	US$/tcal	46
			SRETELEC_ LC	electricity	52-72	US$/tcal	64
			SRETGAS_ LC	gas	59-73	US$/tcal	60
			SRETPRBC_ LC	Bunker "C"	54-57, 59-74	US$/tcal	60
			SRETPRFO_ LC	fuel oil	56-74	US¢/gallon	60
			SRETPRMP_ LC	premium gasoline	70-75	US¢/gallon	60
			SRETPRMR_ LC	regular gasoline	50-75	US¢/gallon	60
				transformation sector:			
			TRANPRFO	fuel oil	50-73	th.met.tons	32
			TRANPRLG	LPG	50-73	th.met.tons	32
		VEN_	CAR_ TEMP	winter temperature, Caracas	65-75	degrees F	66
				consumption:			
			FPRFO	fuel oil	50-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRLG	LPG	50-73	tcals	32

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
DATA_	SECOND_	VEN_		consumption:			
			FPRMG	motor gas	1950-73	tcals	32
			FPRTOT	total consumption	50-73	tcals	32
			IRETT_ Y70	index, total retail price	62, 64-73	1970=100	36
			MAR_ TEMP	winter temperature, Maracaibo	54-75	degrees F	66
			NGNP_ LC	gross national product	53-73	mnBolivars	57,86
			LC_Y70	base year '70	58-73	mn1970Bolivars	66
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
			POP	population	50-74	millions	92
				retail price:			
			SRETCOAL_ LC	coal	62-72	Bolivars/tcal	270
			SRETPRBC	Bunker "C"	70-75	US$/tcal	224
			SRETPRFO	fuel oil	75	US$/tcal	224
			SRETPRKS	kerosene	57-61, 63-65, 70-75	US$/tcal	224
			SRETPRMP	premium gasoline	57-61, 63-65, 70-75	US$/tcal	224
			SRETPRMR	regular gasoline	56-65, 70-75	US$/tcal	224

TABLE 5-5

FILE TYPE	ARCHIVE NAME	REGION OR COUNTRY	DATA FILE NAME	VARIABLE DESCRIPTION	RANGE	UNITS	BIBLIOGRAPHY NUMBER
		WEUR_		consumption:			
			FPRFO	fuel oil	1950-73	tcals	32
			FPRKS	kerosene	50-73	tcals	32
			FPRLG	LPG	50-73	tcals	32
			FPRMG	motor gas	50-74	tcals	207
			PFDSK	production, feedstocks	50-74	mn.met.tons	207
		WGER_		consumption:			
			FFDSK	feedstocks	50-73	th.met.tons	32
			FINDPRFO	industrial fuel oil	50-73	tcals	32
			FOPET	all other petroleum products consumed	50-73	tcals	32
			FOPRFO	domestic fuel oil	50-73	tcals	32
			FOTHPRFO	all other fuel oil,	50-73	th.met.tons	32
			FPRAG	aviation fuel	50-73	tcals	32
			FPRDS	diesel fuel	50-73	tcals	32

CHAPTER SIX

Bibliography

Table 6-1 is a bibliography of all of the sources used in the compilation of the data base. These references are not listed alphabetically, but each has a number which corresponds to the number in both the tables in Chapters Two, Three, Four and Five, and in the 'comments' section of each TROLL data file.

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CHAPTER SEVEN

TROLL Data File Names

Each variable for each country has a TROLL* data file name under which it is stored on the computer system. The file names consist of mnemonics or abbreviations for the sector, the country and the variable. A brief description of the TROLL naming conventions will help the user understand the construction of the data file names.

The TROLL data file name can have several segments, or strings of characters separated by an underscore. The successive segments will here be referred to as 'first level,' 'second level,' etc.

Examples

Format of Data File Name:	xxxxxxxx_	xxxxxxxx_	xxxxxxxx_
	first level	second level	third level
Data File Name:	IND_	BELG_	FPRMG

(Figure 7-1)

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*The data base is stored on TROLL, a software package which provides a comprehensive environment for creating, estimating, and simulating economic models. For further information, contact the Information Processing Service at MIT.

The first level of the name is known as the "archive name." The archive names in the World Oil Project data base indicate the sector; for example, 'IND' indicates industrial data. The second level is an abbreviation for a country or region and indicates the country or region of that data file. The third and fourth levels of the name indicate the variable. There are many variables and the abbreviations or mnemonics employed are quite complex.

Table 7-1 alphabetically lists all of the archive names, or character strings that are in the first level, and which sector each represents. Table 7-2 alphabetically lists the second level character strings, abbreviations for all the countries and regions. Table 7-3 alphabatically lists the mnemonics for the variables.

Table 7-4 is an index of all of the variables in the data base. This index refers to the third and fourth level of the data file name, or the mnemonic for the variable. The index will also refer to the archive, or sector, in which the variable can be found.

Table 7-1

First Level TROLL Names - Archive Names

ind	industrial sector data
second	product demand data
trans	transportation sector data
twotime	residential sector data

Table 7-2

Second Level TROLL Names - Country or Regions

Abbreviation	Definition
afr	African continent, UN classification
arg	Argentina
ausl	Australia
aust	Austria
belg	Belgium
braz	Brazil
camr	Central American countries, UN classification
can	Canada
den	Denmark
eafr	Africa, excluding South Africa
fare	Far East, UN classification
fin	Finland
fran	France
indi	India
ital	Italy
jap	Japan
mex	Mexico
mide	Middle Eastern countries, UN classification
namr	North America, UN classification
neth	the Netherlands
nor	Norway

(Table 7-2, continued)

Abbreviation	Definition
oamr	Other America, UN classification
ocen	Oceanic countries, UN classification
oeur	Other European countries, UN classification
safr	South Africa
skor	South Korea
span	Spain
swed	Sweden
swit	Switzerland
turk	Turkey
uk	United Kingdom
usa	USA
ven	Venezuela
weur	Western Europe, UN classification
wger	West Germany

Table 7-3

Third and Fourth Level TROLL Names - Variables

Mnemonic	Definition
a	apparel
allfuels	all fuels consumed by industrial sector
b	beverages
c	communication
cap	capital
cbkb	lignite briquettes
ccok	coke oven coke
cdl	consumption of diesel fuel (transportation sector)
cgo	gas oven coke
cmg	consumption of motor gasoline (transportation sector)
colb	brown coal
colh	hard coal
con	construction
cpat	patent fuel
d	durables
dm	durables and maintenance
dnr	depreciation rate, non-residential structures
dpd	depreciation rate, producer durables
elec	electricity
eng	energy
er	education and recreation
expcap	expenditure on capital
expfuel	expenditure on fuels (industrial sector)
explab	expenditure on labor

(Table 7-3, continued)

Mnemonic	Definition
f	food
f* * * *	total consumption of * * * * (fuel type) (example: fpcru = total consumption of crude oil)
fb	food and alcoholic veverages
find* * * *	* * * * (fuel type) consumed by industry
fliq	liquid fuel
fres* * * *	* * * * (fuel type) consumed by residential sector
fdsk	feedstocks
fo* * * *	* * * * (fuel type) consumed by "other" sector
foth* * * *	* * * * (fuel type) consumed by domestic sector
fpet	petroleum products, all
fref* * * *	* * * * (fuel type) consumed by refineries
fsol	solid fuel
fuel	all fuels
f* * * * _2	same as f* * * *, but from a different source
gas	gas
gman	town, or manufactured gas
gnat	natural gas
gvo, ngvo	gross value of output
gdp	gross domestic product
gnp	gross national product
i* * * *	index of * * * *
iaspric	asset price index
inex	index of private consumption expenditure
ind	industrial
inr	gross fixed capital formation, non-residential structures
ipd	gross fixed capital formation, producer durables

(Table 7-3, continued)

Mnemonic	Definition
iret	retail price index
iwh	wholesale price index
lab	labor
lc	local currency
m	medical
man	manufacturing
manhop	manhours worked by operatives
mars	Marseille
me	gross fixed capital formation, machinery and equipment
ndi	net private disposable income
nemp	number of employees
nex	private consumption expenditure
nexl	total private consumption expeintures
ngnp	gross national product
nop	number of operatives
nr	non-residential structures
nrb	new registrations, buses
nrgv	new registrations, goods vehicles
nrpc	new registrations, passenger cars
o	other
oc	other construction
oeq	other machinery and equipment
p* * * *	production of * * * * (fuel type)
pcdlrv	percentage of diesel fuel used in road vehicles
pcmgrb	percentage of gasoline used in road vehicles
pcru	crude oil
pd	producer durables

(Table 7-3, continued)

Mnemonic	Definition
pdl	price of diesel oil (transportation sector)
pet	all petroleum products
pk	price of capital
pl	price of labor
pmg	price of motor gas (transportation sector)
pop	population
ppp_f	purchasing power parity: Fisher ideal
_g	German
_n	native
pr	petroleum product
prag	aviation fuel
prbc	heavy fuel oil
prds	diesel fuel
pref	refinery fuel
prfo	fuel oil
prjf	jet fuel
prks	kerosene
prlg	LPG
prmg	motor gas
prmp	premium motor fuel
prmr	regular motor fuel
r	government bond yield
ros	Rosario
sb	stock of buses
sh_ * * * *	share of * * * *
sind* * * *	industrial price of * * * * (fuel type)
spc	stock of passenger vehicles
sret* * * *	
swh* * * *	wholesale price of * * * * (fuel type)

(Table 7-3, continued)

Mnemonic	Definition
tc	transportation and communication
tdl	taxation, diesel fuel
temp	temperature
tmg	taxation, motor gasoline
tran* * * *	* * * * (fuel type) consumed by transporation sector
traneq	transportation equipement, gross fixed capital formation
tvb	traffic volume, buses
tvgv	traffic volume, goods vehicles
tvpc	traffic volume, passenger cars
u_pppnr	purchasing power parity, non-residential structures
u_ppppd	purchasing power parity, producer durables
va	value added
vat	value added tax
vcdl	vehicular consumption of diesel fuel
vcmg	vehicular consumption of motor gas
wags	wages and salaries
wsup	wages and supplements
xeurs	monetary conversion, eurs
xrate	exchange rate
y* *	base year * * (example: y70 = base year 1970)

Table 7-4

Index of Terms

(Table 7-4, continued)

	mnemonic	found in archive:
Consumption of fuel * * * *	f* * * *	second
Consumption by industrial sector, of fuel* * * *	find* * * *	ind
Consumption by residential second, of fuel****	fres* * * *	twotime
Consumption total petroleum	fprtot	second
Consumption by transformation sector of fuel * * * *	tran* * * *	second
Consumption by transportation sector, of fuel * *	c* *	trans
Crude oil	pcru	second
Depreciation rate		
non-residential structures	dnr	ind
producer durables	dpd	ind
Diesel oil		
consumption of, see Consumption		
percentage consumed by road vehicles	pcdlrv	trans
price of, see Price		
tax on	tcl	trans
Electricity	elec	twotime, ind
consumption of, see Consumption		
prices of, see Prices		
private consumption expenditure on	nexelec	twotime
Employees		
number in industry	nemp	ind
number of operatives	nop	ind

(Table 7-4, continued)

	mnemonic	found in archive:
Energy	eng	twotime
private consumption expenditure on	nexeng	twotime
Exchange rates	xrate	twotime,second
also see Purchasing Power Parities		
Expenditure		
see Consumption, expenditure, private		
on Capital	expcap	ind
on (industrial) fuels	expfuel	ind
on labor	explab	ind
Feedstocks, chemical	fdsk	second
Final internal consumption of fuel	f****	second
Food and beverages	f	twotime
Fuel oil, total	prfo	twotime,second
light	prfo	twotime,second
heavy	prbc	second,ind
Fuels		
see Consumption, and individual products		
Gas	gas	twotime,ind
natural	gnat	
manufactured		
Goods Vehicles		
new registrations	nrgv	trans
traffic volume	tvgv	trans
vehicles (stock of)	sgv	trans
Government bond yield	r	ind
Gross domestic product	gdp, gnp	ind,second

(Table 7-4, continued)

	mnemonic	found in archive:
Gross Fixed capital formation		
non-residential structures	nr,inr	ind
producer durables	oeq,ipd	ind
Hard coal	colh	twotime,second, ind
Heavy fuel oil	prbc	second,ind
Hourly wage rate		
see Price of labor		
Hours worked		
by operatives	manhop	ind
Income,personal disposable	ndi	second,twotime
Index of ****	i****	ind,twotime, second
of total private consumption expenditure	inex1	twotime
asset price	iaspric	ind
non-residential structures	iaspric_nr	ind
producer durables	iaspric_pd	ind
of retail price of ****	iret****	second
of wholesale price of ****	iwh****	second
Industrial data		
all in one archive	ind	ind
all industrial data preceded by; ind		
Industrial price of ****	sind****	second,ind
Industrial sector, consumption of		
heavy fuel	findprbc	ind
all fuels	allfuel	ind

(Table 7-4, continued)

	mnemonic	found in archive:
Interest rate		
government bond yield	r	ind
Jet fuel	prjf	second
consumption of, see Consumption		
Kerosene	prks	second
consumption of, see Consumption		
Labor		
compensation of labor	wags	ind
expenditure on labor	explab	ind
number of employees in industry	nemp	ind
supplements to wages	wsup	ind
Light fuel oil	prfo	second,ind, twotime
Liquid Fuel	fliq	twotime
consumption of, see Consumption		
Liquified petroleum gas	prlg	second
consumption of, see Consumption		
Local currency	lc	second,ind, twotime
LPG		
see Liquified petroleum gas		
Machinery and Equipment	me	ind
gross fixed capital formation	me	ind
Manhours		
of operatives	manhop	ind
Manufacture, or town gas	gman	twotime
consumption of, see Consumption		

(Table 7-4, continued)

	mnemonic	found in archive:
Motor fuel	prmg	second
consumption of, see Consumption		
premium	prmp	second
regular	prmr	second
prices of, see Prices		
Net Personal disposable income	ndi	second,twotime
Number of employees, industry	nemp	ind
Operatives		
number of	nop	ind
manhours worked by	manhop	ind
Other	o	twotime
private consumption expenditure on	nexo	twotime
Other construction	oc	ind
Passenger cars		
new registrations	nrpc	trans
traffic volume	tvpc	trans
vehicles in use (stock of)	spc	trans
Petroleum Products		
total consumption of, excluding refinery loss and bunkers	fprtot	second
also, see individual products see Consumption		
Population	pop	second
Premium motor fuel	prmp	second
consumption of, see consumption		
prices of, see Prices		

(Table 7-4, continued)

	mnemonic	found in archive:
Temperature	temp	twotime,second
Traffic volume		
bus	tvb	trans
goods vehicles	tvgv	trans
passenger cars	tvpc	trans
Transformation sector		
consumption of ****	tran****	second
Transportation		
private consumption expenditure on	next	twotime
Transportation data all transportation sector data preceded by "trans"	trans	trans
Units		
local currency	lc	second, twotime ind
Value Added	va	ind
Value added tax	vat	ind
Vehicles in use (stock of)		
buses	sb	trans
goods vehicles	sgv	trans
passenger cars	spc	trans
Wages total compensation, see Expenditure on Labor hours, see Prices of Labor		
Year		
base year nn of data	ynn	second,ind, twotime

CHAPTER EIGHT

Conversion Factors

All of the quantity and price data is expressed in terms of tcals, which is a measure of heat content. In this section tcals will be defined. Some issues which are important when using heat measurements and when defining total consumption will be discussed. The tables which appear at the end of this chapter show how tcals relate to BTU's, metric tons, and barrels, in addition to other relevant conversion factors.

Tcals

A tcal, or 10^9 kcals, is a precise, scientific measure of heat energy. One kcal, or kilogram calorie is the amount of heat required to raise the temperature of one kilogram of water at 14.5 degrees Celsius, one degree Celsius. There are however, net tcals and gross tcals for the purpose of measuring heat content of fuels. The difference between net and gross values is the amount of heat lost as steam during combustion. For coal and oil, there is approximately a 5% difference between net and gross measures of heat value, for gas approximately 9%, and no difference in electricity. It is usually the European convention to use net tcals and the American convention to use gross tcals. The World Oil Project data is expressed as gross tcals, except for the industrial data, which is in net tcals.

Refinery Loss: Heat and Volumetric Measures

As part of the larger effort to analyze the world oil market, a means of calculating all of the non-communist world oil consumption was required. While using the demand by product information in tcals, a total in millions of barrels/day (crude equivalent) was desired. Switching from a heat measure to a volumetric measure, however, poses some problems and certain factors must be accounted for.

When product consumption is added by heat content rather than by volume, a 4% loss in the apparent energy content results. While industry sources may display balance sheets using volumetric data which indicates a 5% refinery loss, the true loss in conversion from crude oil to products is the 5% volumetric loss plus an additional 4% loss. This is because the average barrel of product has about 4% less energy than a barrel of crude.

This can be illustrated with a few examples. A misleading error occurs when consumption categories are added volumetrically and deemed equivalent to that volume of crude oil, as in Figure 8-1.

1 barrel gasoline + 1 barrel distillate = 2 barrels crude

(Figure 8-1)

A barrel of gasoline in terms of energy content, however, is not equivalent to a barrel of crude oil, as Table 8-1 shows. (Next page)

Table 8-1

Product	Heat Content in Tcal/bbl[1]
crude oil	.00146
distillate oil	.00147
residual oil	.00159
kerosene	.00143
gasoline	.00132
diesel oil	.00146

Adding by energy content, it can be seen that the method used in Figure 8-1 leads to inaccuracies.

	1 barrel gasoline	=	.00132 tcals
+	1 barrel distillate	=	.00147 tcals
	crude	=	.00279 tcals
		=	1.91 barrels of crude

(Figure 8-2)

This shows that when product demand is added by heat content rather than by volume, the result is underestimation. By using a 9% refinery loss when converting from tcals to barrels, the resultant equivalent demand for crude is correct.

Defining Consumption

There are several definitions of total demand involving different accounting methods. The consumption data on the data base, from OECD and UN sources, categorizes by end-use and defines consumption as "total inland consumption."

consumption = production + imports -exports - bunkers ± stock changes

(Figure 8-3)

This formulation excludes bunkers from maritime vessels.[2] To arrive at a "total consumption" figure from the information in the data base, something must be added for bunkers. The category "stock changes" is often used to account for statistical differences, although some more recent publications now use a separate category for this.

Demand can also be defined as "apparent inland consumption."

consumption = production + imports - exports - bunkers

(Figure 8-4)

Changes in inventory are not accounted for in this formulation. When this is used, input/output tables do not balance. With all definitions of demand there is room for error; fuel in transit is not explicitly accounted for and may appear in the statistical difference, or stock change category, or may not be accounted for at all. These differences

in accounting are significant and must be compensated for in order to compare different demand figures.

Tables

Following are tables of the conversion factors used to convert different units to tcals, in addition to other relevant conversion factors. There are variations in the actual values of fuels between countries and different grades or qualities of fuels and products, but the conversion factors used here are all average values.

References

1. The Energy Index, Environment Information Center, Energy Reference Department, New York, NY, 1973.

2. Darmstadter, Joel, Energy in the World Economy, Johns Hopkins Press, Baltimore, 1971.

Table 8-2

Conversion Factors, Gross Values

To Convert	From: tons to tcal	cubic meters to tcal	KWH to tcal	gallons to tcal	liters to tcal	barrel to tcal
	Multiply by					
Crude oil	.0107	*	*	*	*	.00146
Fuel oil, light	.0107	*	*	$.32 \times 10^{-4}$	$.00892 \times 10^{-3}$	.00147
residual	.0106	*	*	-	$.00851 \times 10^{-3}$	.00159
Kerosene	.0112	*	*	$.325 \times 10^{-4}$	$.00875 \times 10^{-3}$	.00143
Motor gas	.0112	*	*	$.315 \times 10^{-4}$	$.008259 \times 10^{-3}$	.00132
Diesel oil	.0110	*	*	$.32 \times 10^{-4}$	$.00892 \times 10^{-3}$	.00146
Aviation gas	.0108	*	*	$.315 \times 10^{-4}$	$.008254 \times 10^{-3}$	.00127
Jet fuel	.0112	*	*	$.325 \times 10^{-4}$	$.00875 \times 10^{-3}$	.00143
Naphtha	.0134	*	*	*	*	*
LNG	.0124	*	*	*	*	*
Natural gas	*	$.009 \times 10^{-3}$	*	*	*	*

* Not applicable, or not used in WOP data base.

(Table 8-2, continued)

To Convert	From: tons to tcal	cubic meters to tcal	KWH to tcal	gallons to tcal	liters to tcal	barrels to tcal
	Multiply by					
Manufactured gas	*	$.0042 \times 10^{-3}$	*	*	*	*
Coal	.007	*	*	*	*	*
Coke	.0047	*	*	*	*	*
Electricity	*	*	$.859 \times 10^{-6}$	*	*	*

* Not applicable, or not used in WOP data base.

Table 8-3

Volumetric and Calorific Conversion Factors

1 Tcal	=	10^{12} calories
1 Kcal	=	10^{3} calories
	=	3.968 BTU
1 cal	=	.003968 BTU
1 BTU	=	252 calories
1 therm	=	10^{5} BTU
1 therm	=	2.52×10^{-5} tcals
1 KWH	=	3412 BTU

---

1 metric ton	=	2204 lbs.
	=	1000 kg.
1 barrel	=	42 US gallons
	=	159 liters
1 US gallon	=	.833 imperial gallons
	=	3.785 liters
1 imperial gallon	=	1.2 US gallons
1 liter	=	.2642 US gallons
1 kiloliter	=	6.29 barrels

Table 8-4

Conversion Factors Used in the Oil Trade

Compiled by The Petroleum Economist. Full official conversion and other tables are contained in the volumes published jointly by the American Society for Testing Materials and the Institute of Petroleum, under the title "ASTM/IP Petroleum Measurement Tables".

Linear and square measures

1 inch
=0.0254 metre

1 foot
=0.333 yard
=12 inches
=0.305 m

1 yard
=3 feet
=36 inches
=0.914 m

1 metre (m)
=1.094 yards
=3.281 feet
=39.37 inches
=0.001 km

1 kilometre (km)
=1 000 metres
=0.621 mile

1 statute mile
=1 760 yards
=1.609 km

1 nautical mile
=6 080 feet
=1.15152 statute miles

1 square foot
=0.093 square metre

1 square yard
=9 square feet
=0.836 square metre

1 square metre
=1.196 square yards
=10.764 square feet

1 acre
=0.405 hectare
=4 840 square yards

1 hectare (ha)
=0.01 square km
=2.471 acres

1 square km
=0.386 square mile
=100 ha

1 square mile
=2.590 square km
=640 acres
=259 ha

Cubic measures

1 cubic inch
=16.387 cubic centimetres

1 pint
=0.5683 litre

1 litre
=1 000 cubic centimetres
=61.024 cubic inches
=1.7597 pints
=0.26417 American gallon
=0.21997 Imperial gallon
=0.035314 cubic foot

1 hectolitre
=100 litres

1 American gallon
=231 cubic inches
=3.7854 litres
=0.83268 Imperial gallon
=0.133681 cubic foot
=0.0238095 American barrel
=0.0037854 cubic metre

1 Imperial gallon
=277.42 cubic inches
=4.5461 litres
=0.160544 cubic foot
=1.20094 American gallons
=0.028594 American barrel
=0.0045461 cubic metre

1 cubic foot
=28.317 litres
=7.4805 American gallons
=6.2288 Imperial gallons
=0.17811 American barrel
=0.028317 cubic metre

1 American barrel
=9 702 cubic inches
=158.99 litres
=42 American gallons
=34.9726 Imperial gallons
=5.6146 cubic feet
=0.15899 cubic metre

1 cubic metre
=35.315 cubic feet
=1 000 litres
=264.17 American gallons
=219.97 Imperial gallons
=6.2898 American barrels

1 kilolitre
=1 000 litres
=6.2898 American barrels

1 gross ton (shipping)
=100 cubic feet or 2.83 cubic metres of permanently enclosed space

Liquefied methane

1 ton of liquefied methane
=approximately 16 barrels
=approximately 50 000 cubic feet (1 400 cubic metres) of natural gas, depending on methane content

Weights

1 oz
=28.35 grammes

1 lb
=0.453592 kilogramme
=0.009 cwt

1 kg
=2.20462 lb
=0.01 quintal

1 cwt
=112 lb
=50.802 kg

1 metric ton
=0.98421 long ton*
=1.10231 short tons*
=2 204.6 lb

1 English or long ton
=1.01605 metric tons*
=1.12 short tons*

1 short ton
=0.892857 long ton*
=0.907185 metric ton*
=2 000 lb

*These conversions are based on the assumption that all weights are weights in air, which is the correct basis for computing bulk commercial quantities of petroleum.

Power and heat units

1 hp (horsepower)
=550 foot pounds per second
=0.746 kilowatt
=1.014 PS (or Cheval Vapeur)

1 PS (Pferdestaerke) or CV (Cheval Vapeur)
=542 foot pounds per second
=0.986 hp
=0.736 kW

1 kW (kilowatt)
=1 000 watts
=1.340 hp
=1.359 PS or CV
=737 foot pounds per second

1 foot pound per second
=0.00136 kilowatt
=0.00182 hp
=0.00184 PS or CV

1 therm
=100 000 Btu (British thermal units)
=25 200 kilocalories
=25.2 thermies
=29.3 kilowatt hours

1 000 kilocalories (large calories)
=3 968 Btu
=1.163 kilowatt hours
=1 thermie

1 kilowatt hour
=3 411 Btu
=1.340 hp hours
=859.6 kilocalories

Specific gravity: volume per ton

Degrees API	*Spec. gravity*	*Barrels per* met. ton*	*long ton*
25	0.904	6.98	7.09
26	0.898	7.02	7.13
27	0.893	7.06	7.18
28	0.887	7.10	7.22
29	0.882	7.15	7.27
30	0.876	7.19	7.31
31	0.871	7.24	7.36
32	0.865	7.28	7.40
33	0.860	7.33	7.45
34	0.855	7.37	7.49
35	0.850	7.42	7.54
36	0.845	7.46	7.58
37	0.840	7.51	7.63
38	0.835	7.55	7.67
39	0.830	7.60	7.72
40	0.825	7.64	7.76
41	0.820	7.69	7.81
42	0.816	7.73	7.85

*Approx. figures 60°F

Specific gravity ranges

	Spec. gravity	*Barrels per metric ton*
Crude oils	0.80–0.97	8.0–6.6
Aviation gasolines	0.70–0.78	9.1–8.2
Motor gasolines	0.71–0.79	9.0–8.1
Kerosines	0.78–0.84	8.2–7.6
Gas oils	0.82–0.90	7.8–7.1
Diesel oils	0.82–0.92	7.8–6.9
Lubricating oils	0.85–0.95	7.5–6.7
Fuel oils	0.92–0.99	6.9–6.5
Asphaltic bitumens	1.00–1.10	6.4–5.8

Calorific value of fuels

Rough gross values in Btu per lb	
Crude oils	18 300–19 500
Gasolines	20 500
Kerosines	19 800
Benzole	18 100
Ethyl alcohol	11 600
Gas oils	19 200
Fuel oils (Bunker)	18 300
Coal (Bituminous)	10 200–14 600
LNG	22 300

Source: Petroleum Economist (June 1975)

References for Tables

The Energy Index, Environment Information Center, Energy Reference Department, New York, NY, 1973.

Petroleum Economist, June 1975.

Petroleum Facts and Figures, American Petroleum Institute.

CHAPTER NINE

Purchasing Power Parities

9.1 Methodological Problems in the Use of Purchasing Power Parities

There are three conceivable ways to generate international price and expenditure comparisons:

(i) at official exchange rates
(ii) at purchasing power parities
(iii) at "free market" exchange rates.

A competent discussion of the merits and demerits of various methodologies can be found in Samuelson[1] and in Chenery and Syrquin.[2] Method (i), conversion at official exchange rates, will receive no further attention here since such rates are *a priori* inadmissable (due to distortions, rigidities and controls) to deflate nominal to real values in an economically meaningful way.

Method (iii) may prove to be of some value. "Free market" rates between individual countries may loosely be had for a large number of countries (i.e., those with minimal tariff distortions and exchange controls) by selecting pairs of countries with substantial trade balances and a time-period thought to qualitatively reflect "equilibrium" forces. Alternatively, estimates of the "effective rate of protection" can be found for those countries with substantial distortions and used to deflate to nominal values

(see Schydlowsky and Syrquin[3]). Such estimates may be found in Balassa and Associates[4] and in Balassa.[5] But there is little formal theoretical defense for such procedures and they, too, will receive no further discussion.

The remaining option is to deflate nominal values by estimates of the relative purchasing power of the various national currencies. There are three ways such comparisons can be made:

(i) Implicitly: one can take a nominal national currency estimate of national product and base currency (such as US$) estimate of the same national product and produce an implicit purchasing power deflator. Such a procedure is followed in Lluch and Powell[6] and Lluch and Williams[7].

(ii) Explicitly, making binary comparisons. A formula of the form

$$\Sigma P_A Q_A / \Sigma P_B Q_A = PPP_A$$

$$\Sigma P_A Q_B / \Sigma P_B Q_B = PPP_B$$

(Figure 9-1)

with P, Q, A, and B representing price, quantity, country A and country B respectively, gives the A and B weighted (Laspeyre and Paasche) price index numbers, PPP_A and PPP_S. As Samuelson[1] points out, theoretically, and Kloek and Theil[8] show empirically, there are good reasons to prefer a Fisher "ideal" geometric mean of these two numbers as a single index of relative purchasing power.

These binary comparisons, in turn, can be used to make multilateral purchasing power comparisons. While the use of a single "bridge" country to make these comparisons guarantees a transitive international ordering, such an ordering is not invariant with respect to changes in the choice of "bridge" country. It can also be argued that, in the case

of incomplete data, the binary comparison of "included" prices neglects valuable information on "excluded" prices that could be utilized in multilateral price level comparison. Kravis, et.al.,[9] discusses these issues in Chapter 5.

(iii) Explicitly, making multilateral comparisons. Within a regression model, a variance components strcture is used to estimate the purchasing power parity for a single category of expenditure, as a function of all other international price ratios. Such a formulation is both transitive and base-country invariant in the orderings produced. Kravis, et.al.,[9] have implemented such an approach.

After we have obtained base-year parities, we are faced with the problem of constructing intertemporal conversion indices to deflate our time series data. To do this, note that such an exchange rate between countries A and B equals the relative prices, in the national currency, of some given market basket of goods, i.e.,

$$X_{AB} = P_A/P_B \text{ for some base year } b = P_A(b)/P_B(b)$$

(Figure 9-2)

and that

$$P_A(b+t)/P_B(b) = \frac{P_A(b+t)}{P_A(b)} \cdot X_{AB}.$$

(Figure 9-3)

Given a base-year purchasing power parity, and time series of the consumer price indices, we can easily construct the implicit ratio of relative intertemporal purchasing powers in terms of the base-year numeraire.

9.2 Availability of Data

In all the following, B denotes a bilateral PPP ratio, M a multilaterally estimated PPP ratio. Countries for which the comparisons have been made are listed. A * denotes that both home and foreign country weighted (i.e., Laspeyne and Paasche) price indices have been constructed; otherwise, assume that only the weights of the country (or author's country) of issue are used. "DET" indicates PPP ratios by detailed category of consumer expenditure are available; "INV" indicates a ratio for the gross investment deflator has also been constructed.

1. Implicit ratios $\left(\frac{\text{N.C.U. GNP}}{\$ \text{ GNP}}\right)$

(N.C.U. = national currency unit)

Table 9-1

(i) Lluch and Powell[6]

Year = variable, generally in early '60's	Thailand	Greece	U.K.
	S. Korea	Panama	W. Germany
	Phillipines	S. Africa	Australia
	Taiwan	Ireland	Sweden
	Ecuador	Puerto Rico	U.S.A.
	Chile	Italy	
	Jamaica	Israel	

(ii) Lluch and Williams[7]

Year of comparison occasionally varies from above study	Thailand	Greece	U.K.
	S. Korea		W. Germany
		S. Africa	Australia
	Taiwan	Ireland	Sweden
			U.S.A.
		Italy	
	Jamaica	Israel	

2. Explicitly calculated PPP series.

Table 9-2

(i) Gilbert, et.al.,[10]

B

Year = 1950, DET, INV

U.S. *	France *	Italy *
Denmark *	Belgium *	
U.K. *	Netherlands *	
Norway *	Germany *	

(ii) Watanabe & Komiya,[11]

B

Year = 1952, DET, INV

U.S.	Japan

(iii) Statistical Office of the European Economic Community,[12]

B

Year = 1955-61

Germany *	Belgium *
France *	Saarland *
Italy *	
Netherlands*	

(iv) Statistical Office of the European Economic Community,[13]

B

Germany *	Belgium *
France *	Luxembourg *
Netherlands *	

(v) Economic Commision for Latin America,[14]

B

Year = 1960, 62, DET, INV

All 18 Latin American countries*

(vi) Salazar-Carrillo,[15]

B

Year = 1968

Argentina	Colombia	Peru
Bolivia	Ecuador	Uruguay
Brazil	Mexico	Venezuela
Chile	Paraguay	

(Table 9-2, continued)

(vii) Kravis, et.al.,[9]

B, M

Year = 1970, DET, INV

Colombia *	India *	UK *
France *	Italy *	US *
Germany *	Japan *	
Hungary *	Kenya *	

B

Year = 1967, DET, INV

Hungary *	Kenya *
India *	UK *
Japan *	US *

(viii) Statistiches Bundesamt,[16]

B

Year = 1949-73, DET

Belgium*	Spain	Panama
Denmark *	Czechoslovakia	Paraguay
Finland *	Turkey	Peru
France *	Hungary	Uruguay
UK *	Ethiopia	Venezuela
Italy *	Ghana	India
Luxembourg *	Cameroun	Australia *
Netherlands *	Mauretania	New Zealand
Norway *	Niger	
Austria *	Senegal	
Sweden *	South Africa	
Switzerland *	Tunisia	
USSR *	Chad	
Kenya *	Uganda	
Rhodesia *	Argentina	
Tanzania	Bolivia	
Canada *	Brazil	
US *	Chile	
Israel *	Costa Rica	
Poland	Dominican Rep.	
Greece	Guatemala	
Yugoslavia	Colombia	
Portugal	Mexico	

9.3 Calculation of 1970 Base-Year Purchasing Power Parities for Detailed Expenditure Classes

We are currently using Fisher ideal values from the Statistiches Bundesamt and much of Kravis' data. For overall purchasing power parities, we used all expenditures without rent, since rent figures are of dubious reliability. For detailed expenditure losses, two methods were used, depending on the availability of detailed expenditure indices.

A. Detailed Expenditure Class Indices Available

The final result we want is a 1970 base-year parity with the U.S. as the base country. (All U.S. purchasing power parities = 1 by definition), e.g., for England we want Pd.'70/$'70. The data available (see Table 9-3) from the Statistiches Bundesamt is in the form of a purchasing power parity with Germany as base-country and with a base-year which varies for different countries and is usually not 1970. The first step in arriving at a U.S.-based purchasing power parity will be to transform the Germany-based PPP's to 1970 base-year. An example, using Norway, which has a June 1960 PPP (see table), follows:

$$\text{DM '70/Pd. '70} = \text{PM June'60/Pd. June'60} \times \frac{\text{DM'60/DM June'60}}{\text{Pd.'60/Pd. June'60}} \times \frac{\text{DM'70/DM'60}}{\text{Pd.'70/Pd.'60}}$$

(Figure 9-4)

The two expressions on the right can be obtained from indices for the expenditure classes we used--apparel, durables, food, transportation and communication, and other.

To obtain the precise index value for a month and year, e.g. June '60, we simply extrapolated using the midyear point of the preceding year and the midyear

point of the succeeding year as base points. That is, an index given for 1960 is presumed to be an average for the 12 months. Since one has to pick a single point in closest approximation, this index number is presumed to be that of June, 1960 exactly. Thus, the index for August, 1960 would be extrapolated 2/12ths of the way between the 1960 and the 1961 index.

Once the German-based 1970 PPP is obtained, the U.S. based PPP is simply

$$\text{Pd.'70 (or any currency)/\$70} = (\text{DM'70/\$'70})/(\text{DM'70/Pd.'70})$$

(Figure 9-5)

Since DM'70/\$'70 = 3.32, this reduces to

$$(\text{US-based 1970PPP})\frac{\text{1970 LC'70}}{\text{\$70}} = 3.32/\frac{\text{DM'70}}{\text{LC'70}}\ (\text{German-based PPP})$$

(Figure 9-6)

B. General Expenditure Index Available Only

In cases where indices for detailed expenditure classes were not available, the following formula was used as the next best approximation (apparel is used):

$$\frac{\text{DM'70}}{\text{Pd'70}}(\text{1970 PPP for apparel}) = \frac{\text{DM'70(apparel)/DM'72(apparel)}}{\text{Pd'70(general/Pd'72(general)}} \times \frac{\text{DM'72}}{\text{Pd'72}}\left(\begin{matrix}\text{1970 PPP}\\ \text{for apparel}\end{matrix}\right)$$

(Figure 9-7)

All four terms in the middle expression above are expenditure indices. Note that all the indices for Germany were available, whereas England is used as an example of a country for which the index for apparel was not available.

Table 9-3

Residential Sector

Country	Unit	Wt	Food	Apparel	Energy	Transp.	Durables	Other	TOTAL
Belgium	Bfr	F			43.5	46.03	43.44	43.50	43.5
		G	48.18	38.6		46.03		30.26	43.5
Canada	Can $	F	1.13	.88	1.08	1.08	.85	1.08	1.08
France	Fr fr	F	5.49	4.23	5.13	5.99		4.64	4.64
Netherlands	Lfl	F	3.03	2.34	1.47	3.04	2.29	2.75	2.75
Norway	Kr	F	8.01	5.06	4.3	6.112	4.34	6.36	6.36
United Kingdom	£	F	.336	.236	.336	.313	.217	.313	.313
West Germany	DM	F	3.88	2.4	2.84	3.68	2.61	3.32	3.32

TABLE 9-4

Industrial Sector

Country	Unit	GOP	Producer Durables	Non-Residential Structures
Canada	Can $	.967	1.136	.871
France	F. Fr.	3.94	5.32	3.29
Italy	Lit	605	925	466
Japan	Yen	227	302	360
Netherlands	Lfl	2.93	4.08	3.28
Norway	Kr.	6.58	10.59	5.84
Sweden	Kr	6.58	10.59	5.84
United Kingdom	£	.319	.388	.329
West Germany	DM	3.51	5.09	3.51

Table 9-5

PPP = Rent

Country	Date	Unit	G	N	F
Belgium	July 1953	100 Bfr	4.89	4.89	4.89
France	Oct./Nov. '58	100 Ffr	1.29	1.59	1.43
Italy	April '52	10,000 Lr	102.52	102.52	102.52
Netherlands	Nov. '60	1 Hfl	1.52	1.54	1.53
United States	March '53	1 vs. $	1.17	1.17	1.17
Spain	April '53	100 Ptas	14.43		

9.4 Computing the Relative Price in US$ of a Good in Another Country

Note that we have available:

1. PPP defined as $P_{LC}/P_{\$}$ (LC = local currency)

where P_{LC} is the price of a market basket of all goods in LC;

$P_{\$}$ is the price of the same basket of all goods in US$.

PPP can be interpreted as "the price of 1 U.S. dollar's worth of all goods in terms of LC."

2. PPP_i defined as $P_{iLC}/P_{i\$}$

where P_{iLC} is the price of good i in LC;

$P_{i\$}$ is the price of good i in US$.

PPP_i can be interpreted as "the price of one U.S. dollar's worth of good in in terms of LC."

Thus, to compute the relative price in US$ of good i in another country, given PPP_i and PPP:

PPP_i	gives the LC price of one US$ worth of i
X * 1/PPP	gives the overall purchasing power in US$ of X units of LC, so
PPP_i * 1/PPP	gives the overall purchasing power in US$ of the LC necessary to buy one US$ worth of i.

Conclusion: PPP_i/PPP gives the relative price in US$ of good i.

US price = 1 $ US.

Foreign price = PPP_i/PPP $ US.

To compute the relative price in US$ of good i in another country, given a price series for i in LC(P_{iLC}) and another price series for i in $ (in the US) (P_{iUS}), recall that

X * 1/PPP gives you the real value in US$ of X LC, so

P_{iLC}/PPP = real price in US$ of good i abroad;

P_{iUS} = real price in US$ of good i in US.

Finally, note that all of the above computations have assumed PPP's and price series are in a single constant year's currency units.

1. To convert P_{iLC} in nominal units to P_{iLC} in constant year units,
   (a) normalize P_{LC} to 1 in desired base year t*.
   Call this $P_{LC}(t^*)$.
   (b) let $P_{iLC}(t^*) = P_{iLC}$ in constant year t* LC units.
   Then $P_{iLC}(t^*) = P_{iLC}/P_{LC}(t^*)$.

2. To convert a PPP (or PPP_i) from base year t_1^* to base t_2^*,

   (a) set $PPP(t_2^*) = PPP(t_1^*) \times \left[\frac{P_{LC}(t_1)}{P_{LC}(t_2)} / \frac{P_{i\$}(t_1)}{P_{i\$}(t_2)}\right]$

   (b) set $PPP_i(t_2^*) = PPP(t_1^*) \times \left[\frac{P_{iLC}(t_1)}{P_{iLC}(t_2)} / \frac{P_{i\$}(t_1)}{P_{i\$}(t_2)}\right]$.

TABLE 8-7

SULTS OF THE MULTILATERAL COMPARISONS

Summary Multilateral Table 14.3. Purchasing-Power Parities per U.S. Dollar, 1970

		Line number	Colombia (peso)	France (franc)	Germany, F.R. (D.mark)	Hungary (forint)	India (rupee)	Italy (lira)	Japan (yen)	Kenya (shilling)	U.K. (pound)	U.S. (dollar)
1	Consumption, ICP	1 to 169	8.3	4.64	3.32	15.0	2.24	493.	233.	3.68	0.312	1.00
2	Food, beverage, tobacco	1 to 39	9.5	4.78	3.78	20.0	3.08	622.	339.	4.29	0.369	1.00
3	Food	1 to 33	9.8	5.24	3.96	21.2	3.13	645.	343.	4.19	0.301	1.00
4	Bread & cereals	1 to 6	9.3	5.33	3.78	11.3	2.24	523.	238.	3.34	0.232	1.00
5	Meat	7 to 12	10.1	5.33	3.95	28.0	4.41	677.	430.	4.03	0.309	1.00
6	Fish	13 to 14	12.6	6.18	3.43	15.1	1.43	691.	326.	4.06	0.423	1.00
7	Milk, cheese, eggs	15 to 17	10.7	3.92	2.95	17.3	3.20	619.	288.	4.71	0.307	1.00
8	Oils & fats	18 to 20	14.9	6.15	4.61	30.0	5.73	649.	361.	6.35	0.286	1.00
9	Fruits & vegetables	21 to 26	8.5	4.94	3.94	18.5	3.43	571.	410.	3.44	0.315	1.00
10	Coffee, tea, cocoa	27 to 29	12.1	7.85	9.70	95.5	6.55	1657.	378.	6.59	0.373	1.00
11	Spices & sweets, sugar	30 to 33	8.7	6.24	4.36	24.9	4.55	786.	316.	5.10	0.333	1.00
12	Beverages	34 to 37	11.6	3.25	2.50	23.3	13.19	474.	381.	8.43	0.516	1.00
13	Tobacco	38 to 39	4.1	4.00	4.41	8.4	2.80	667.	211.	5.13	0.640	1.00
14	Clothing & footwear	40 to 51	11.1	6.69	4.07	23.9	3.48	577.	240.	4.64	0.334	1.00
15	Clothing	40 to 47	12.2	6.98	4.26	25.0	3.57	591.	251.	5.41	0.360	1.00
16	Footwear	48 to 51	7.3	5.19	3.09	18.3	3.26	494.	188.	2.46	0.227	1.00
17	Gross rent, fuel	52 to 57	10.6	3.86	2.86	9.5	2.19	367.	289.	4.68	0.331	1.00
	Gross rents	52 to 53	10.8	3.16	2.43	8.1	1.32	290.	257.	4.92	0.277	1.00
	Fuel & power	54 to 57	7.8	7.71	4.87	15.1	5.28	853.	414.	3.73	0.457	1.00
20	House furnishings, operation	58 to 71	9.0	4.91	3.21	21.5	1.83	493.	258.	4.76	0.342	1.00
21	Furniture, appliances	58 to 66	13.7	5.78	3.77	23.3	1.63	551.	308.	5.87	0.407	1.00
22	Supplies & operation	67 to 71	5.5	3.63	2.40	18.3	1.64	395.	191.	3.58	0.254	1.00
23	Medical care	72 to 78	3.0	2.06	1.53	4.4	0.69	131.	67.	1.91	0.133	1.00
24	Transport & communications	79 to 91	11.5	7.25	4.84	26.4	3.52	695.	240.	6.14	0.439	1.00
25	Equipment	79 to 80	37.5	6.23	4.23	46.2	8.76	643.	404.	10.39	0.519	1.00
26	Operation costs	81 to 84	9.9	8.62	6.01	21.5	3.34	852.	490.	3.87	0.397	1.00
27	Purchased transport	85 to 89	5.4	5.66	3.68	16.9	2.32	458.	127.	4.22	0.399	1.00
28	Communication	90 to 91	2.8	4.52	2.25	9.5	1.71	405.	200.	3.49	0.236	1.00
29	Recreation & education	92 to 103	5.5	5.39	3.31	8.4	0.61	523.	195.	2.53	0.253	1.00
30	Recreation	92 to 98	12.4	4.92	3.36	9.7	2.60	595.	249.	5.46	0.288	1.00
	Education	99 to 103	2.9	6.59	3.37	7.2	0.34	523.	145.	1.51	0.220	1.00
	Other expenditure	104 to 109	7.5	3.80	2.72	15.1	2.31	453.	169.	3.06	0.281	1.00
33	Personal care	104 to 106	11.1	5.84	3.85	12.6	3.74	591.	255.	4.91	0.269	1.00
34	Miscellaneous services	107 to 109	6.8	3.27	2.37	15.5	1.91	414.	150.	2.76	0.286	1.00
35	Capital formation	111 to 148	8.1	4.51	3.03	20.8	2.74	480.	286.	5.30	0.311	1.00
36	Construction	111 to 124	4.6	3.96	2.40	15.4	1.69	377.	249.	4.06	0.244	1.00
37	Residential	111 to 112	4.3	4.71	2.60	16.9	1.69	437.	254.	3.23	0.192	1.00
38	Nonresidential bldgs.	113 to 120	4.1	3.77	2.31	18.1	1.85	363.	328.	3.45	0.309	1.00
39	Other construction	121 to 124	4.8	3.19	2.32	11.6	1.54	293.	196.	7.70	0.257	1.00
40	Producers' durables	125 to 146	22.8	5.04	3.81	29.9	7.92	595.	329.	7.19	0.395	1.00
41	Transport equipment	125 to 131	21.9	4.86	4.67	29.2	7.96	739.	382.	7.16	0.572	1.00
42	Nonelectrical machinery	132 to 140	25.9	5.17	3.50	32.8	7.31	530.	291.	7.78	0.356	1.00
43	Electrical machinery	141 to 144	20.5	4.43	3.22	21.7	8.23	453.	327.	7.30	0.350	1.00
44	Other durables	145 to 146	17.7	5.44	4.21	29.1	8.40	679.	351.	6.07	0.252	1.00
45	Government	149 to 153	6.4	4.36	3.11	13.7	1.15	526.	215.	2.55	0.314	1.00
46	Compensation	149 to 152	4.9	3.88	3.38	6.8	0.67	532.	166.	1.79	0.285	1.00
47	Commodities	153	8.0	4.63	3.16	21.2	2.45	472.	254.	4.19	0.309	1.00
48	Gross domestic product	1 to 153	8.0	4.48	3.14	16.1	2.16	483.	244.	3.74	0.308	1.00

Note: Line numbers refer to the Appendix Table 14.4 and show the detailed categories that are included in each aggregation.

Source: Kravis, et.al.[9]

TABLE 9-7, continued

THE RESULTS OF THE COMPARISONS

Appendix Table 14.2. Continued

			Colombia	France	Germany, F.R.	Hungary	India	Italy	Japan	Kenya	U.K.	U.S.
117	11.500	Educational buildings	0.28	0.81	0.86	0.45	0.11	0.34	0.68	0.35	0.68	0.67
118	11.600	Hospital buildings	0.10	0.27	0.41	0.16	0.07	0.24	0.24	0.36	0.33	0.35
119	11.700	Agricultural buildings	0.54	0.55	0.29	2.33	0.63	0.43	0.17	0.07	0.18	0.07
120	11.800	Other buildings	0.11	0.21	0.09	0.16	0.15	0.17	1.33	0.09	0.40	0.38
121	12.100	Roads, railways	1.75	0.79	1.53	0.92	0.52	0.85	1.98	1.13	0.92	1.07
122	12.200	Transmission, utility lines	1.46	2.06	1.96	2.98	1.51	0.82	2.32	0.85	0.54	1.46
123	12.300	Other construction	1.02	0.14	0.22	1.56	1.08	0.07	3.07	1.36	0.29	0.28
124	13.000	Land improvement	1.57	0.07	0.07	0.42	1.10	0.52	0.07	0.45	0.24	0.21
125	14.110	Locomotives	0.00	0.09	0.02	0.23	0.05	0.07	0.11	0.27	0.02	0.02
126	14.120	Other	0.03	0.15	0.09	0.48	0.11	0.07	0.01	0.48	0.03	0.13
127	14.200	Passenger cars	0.69	0.78	0.93	0.20	0.05	1.16	1.58	0.99	0.68	0.71
128	14.300	Trucks, buses, trailers	0.98	1.14	1.00	1.25	0.95	1.16	1.98	1.14	0.07	0.92
129	14.400	Aircraft	0.32	0.07	0.21	0.09	0.03	0.21	0.05	0.26	0.20	0.30
130	14.500	Ships, boats	0.47	0.14	0.51	0.05	0.10	0.22	0.54	0.04	0.64	0.08
131	14.600	Other transport	0.02	0.01	0.09	0.71	0.17	0.11	0.21	0.05	0.40	0.04
132	15.100	Engines and turbines	0.15	0.07	0.05	0.26	0.15	0.07	0.29	0.21	0.01	0.13
133	15.210	Tractors	0.14	0.35	0.17	0.40	0.08	0.13	0.06	0.23	0.10	0.1.
134	15.220	Other agricultural machinery	0.20	0.59	0.23	0.59	0.02	0.17	0.27	0.33	0.15	0.25
135	15.300	Office machinery	0.20	0.76	0.79	0.38	0.03	0.20	0.76	0.18	0.35	0.67
136	15.400	Metalworking machinery	0.38	0.35	0.60	0.64	0.15	0.33	1.04	0.11	0.49	0.37
137	15.500	Construction, mining	0.53	1.00	0.66	0.68	0.10	0.19	0.66	0.46	0.51	0.34
138	15.600	Special industrial	0.73	1.16	0.97	2.50	0.27	0.48	1.72	0.99	0.85	0.32
139	15.700	General industrial	0.97	0.56	1.49	0.82	0.75	0.50	1.63	0.94	2.36	0.41
140	15.800	Service industrial	0.04	0.11	0.17	0.12	0.06	0.09	0.15	0.20	0.06	0.35
141	16.100	Electrical transmission	0.44	0.91	0.91	0.26	0.58	0.75	1.06	0.40	0.73	0.28
142	16.200	Communication equipment	0.29	0.62	0.90	0.36	0.56	0.30	1.11	0.29	0.95	0.53
143	16.300	Other electrical	0.55	0.18	0.20	0.07	0.10	0.33	0.31	0.11	0.20	0.08
144	16.400	Instruments	0.29	0.76	0.75	0.62	0.06	0.27	0.58	0.14	0.19	0.33
145	17.100	Furniture, fixtures	0.29	0.43	0.70	1.40	0.02	0.32	0.74	0.19	0.21	0.41
146	17.200	Other durable goods	0.24	0.72	0.70	0.14	0.47	0.66	0.40	0.52	0.05	0.41
147	18.000	Increase in stocks	1.75	2.88	2.23	3.83	2.59	1.56	4.36	2.32	0.74	0.35
148	19.000	Exports less imports	1.63	0.20	1.82	2.92	0.67	0.09	1.26	1.73	0.79	0.15
149	20.100	Blue-collar, unskilled	0.64	0.15	0.30	0.71	1.55	1.31	1.37	4.29	2.49	0.38
150	20.210	Blue-collar, skilled	0.14	0.56	0.85	0.04	0.13	0.58	2.70	0.30	0.31	1.97
151	20.220	White-collar	0.86	1.65	2.96	0.66	1.74	2.19	0.66	1.17	1.97	2.26
152	20.300	Professional	1.64	1.25	0.57	0.60	1.15	0.37	0.89	2.91	0.90	2.77
153	21.000	Government expenditure on commodities	2.0	3.3	6.0	5.8	3.3	2.8	2.2	2.7	3.4	7.0

Note: The net expenditure of residents abroad, line 110 in the binary tables, has been consolidated with other services (line 109) in the multilateral comparisons. Thus, there are 152 categories in this table. See page 70.

Appendix Table 14.3. Purchasing-Power Parities per U.S. Dollar, Nine Countries, and International Prices, 1970

			Colombia (peso)	France (franc)	Germany, F.R. (D.mark)	Hungary (forint)	India (rupee)	Italy (lira)	Japan (yen)	Kenya (shilling)	U.K. (pound)	International prices
1	01.101	Rice	12.0	4.80	5.20	49.7	4.50	589.	440.	4.16	0.390	2.00
2	01.102	Meal, other cereals	15.4	8.32	6.56	19.9	3.07	1,042.	311.	4.86	0.317	1.39
3	01.103	Bread, rolls	11.4	2.65	2.14	5.1	2.56	321.	178.	2.50	0.153	0.56
4	01.104	Biscuits, cakes	22.2	8.65	4.43	22.3	8.58	759.	314.	1.06	0.243	1.21
5	01.105	Cereal preparations	16.4	6.53	3.60	8.2	3.05	896.	352.†	8.06	0.240	0.90
6	01.106	Macaroni, spaghetti, related foods	7.1	4.30	3.67	15.9	10.96	456.	352.	11.85	0.384	1.05
7	01.111	Fresh beef, veal	8.7	4.97	4.16	40.4	2.48	651.	597.	3.41	0.241	1.10
8	01.112	Fresh lamb, mutton	4.3	4.42†	3.66	13.0	4.01	542.†	377.†	3.30	0.247	0.93
9	01.113	Fresh pork	8.9	5.02	3.84	45.7	2.11	696.	448.	6.01	0.347	1.60
10	01.114	Fresh poultry	18.0	6.31	5.01	30.5	6.55	801.	480.	4.39	0.351	1.61
11	01.115	Other fresh meat	9.8	4.92	3.68	16.0	4.39†	474.	410.†	3.19†	0.324	1.19
12	01.116	Frozen, salted meat	13.4	5.79	4.53	23.2	4.28	676.	438.	6.21	0.340	1.31
13	01.121	Fresh, frozen fish	11.7	4.99	3.18	8.5	1.06	648.	299.	2.79	0.387	0.81
14	01.122	Canned fish	17.4	8.07	4.77	62.4	7.93	749.	421.	12.64	0.490	1.71
15	01.131	Fresh milk	8.1	3.17	2.37	12.4	2.77	526.	375.	4.29	0.375	1.06
16	01.132	Milk products	14.3	3.86	3.30	15.4	5.06	643.	348.	5.17	0.186	1.01
17	01.133	Eggs, egg products	17.4	5.54	3.77	31.2	5.35	706.	261.	5.64	0.376	1.14
18	01.141	Butter	15.6	6.16	4.03	26.2	4.00	906.	410.	4.35	0.217	1.51
		[illegible]	10.3	4.25	4.33	28.8	7.11	612.	364.	7.49	0.337	1.66
		[illegible]	30.8	5.35	5.53	39.1	7.50	1,069.	916.	11.85	0.423	2.31
	01.151	Fresh fruits, tropical, subtropical	3.5	7.01	4.56	56.1	5.16	743.	548.	2.73	0.333	1.52
22	01.152	Other fresh fruits	22.6	2.92	2.12	11.2	3.43	270.	373.	14.77	0.370	0.71
23	01.153	Fresh vegetables	7.1	2.60	1.83	7.5	1.42	299.	203.	1.79	0.215	0.62
24	01.161	Fruit other than fresh	28.4	8.70	5.18	49.2	6.00	1,022.	337.	3.59	0.294	1.44

TABLE 9-7, continued

Appendix Table 14.3. Continued

			Colombia (peso)	France (franc)	Germany, F.R. (D.mark)	Hungary (forint)	India (rupee)	Italy (lira)	Japan (yen)	Kenya (shilling)	U.K. (pound)	International prices
25	01.162	Vegetables other than fresh	27.8	8.91	6.79	29.4	6.48	979.	505.	5.13	0.348	2.20
26	01.170	Potatoes, manioc, other tubers	6.7	2.01	2.88	11.4	2.95	394.	283.	2.02	0.201	0.69
27	01.191	Coffee	11.1	8.67	10.88	109.9	10.46	1,853.	709.	7.82	0.369	2.50
28	01.192	Tea	16.6	5.72	7.53	45.9	2.38	957.	236.	2.54	0.159	0.89
29	01.193	Cocoa	11.9	5.40	4.98	45.3	7.50	1,144.	312.†	8.70	0.293	1.49
30	01.180	Sugar	10.2	4.77	4.54	33.7	7.37	386.	508.	5.49	0.291	1.03
31	01.201	Jam, syrup, honey	14.3	4.75	3.31	17.9	5.20	536.	367.	3.37	0.193	1.13
32	01.202	Chocolate, ice cream	13.9	9.45	5.88	29.0	6.10	1,137.	512.	18.05	0.349	1.77
33	01.203	Salt, spices, sauces	5.4	5.99	4.51	14.7	2.23	444.	159.	5.22	0.343	0.93
34	01.310	Nonalcoholic beverages	9.4	3.00	2.87	24.4	5.41	517.	328.	12.59	0.345	1.18
35	01.321	Spirits	10.3	3.98	2.48	26.1	9.95	396.	266.	6.51	0.418	1.12
36	01.322	Wine, cider	50.0	1.93	2.03	15.3	18.49	304.	292.	13.21	0.896	0.70
37	01.323	Beer	8.3	2.96	2.23	17.2	9.97	408.	332.	8.21	0.571	1.27
38	01.410	Cigarettes	3.6	4.46	4.97	8.3	8.10	676.	211.	5.14	0.638	1.12
39	01.420	Other tobacco	7.4	2.47	2.14	17.1	2.63	559.	157.†	4.59	0.658	1.12
40	02.110	Clothing materials	13.2	8.39	5.24	57.7	7.27	747.	410.	7.71	0.380	2.09
41	02.121	Men's clothing	10.1	5.32	3.02	21.4	2.95	505.	243.	4.64	0.313	1.13
42	02.122	Women's clothing	17.2	9.81	5.00	26.8	3.30	859.	235.	9.46	0.441	1.46
43	02.123	Boys', girls' clothing	12.9	4.84	4.23	22.7	2.46	461.	268.	3.09	0.299	1.15
	02.131	Men's, boys' underwear	12.7	6.16	4.98	26.8	1.78	611.	264.	8.85	0.432	1.36
	02.132	Women's, girls' underwear	13.3	9.13	5.17	24.7	5.53	769.	255.	4.39	0.350	1.47
	02.150	Other clothing	10.0	5.14	3.44	18.4	6.73	453.	191.	4.14	0.245	1.02
47	02.160	Clothing rental, repair	6.2	3.94	4.56	9.0	1.19	254.	112.†	3.02	0.320	0.65
48	02.211	Men's footwear	7.7	5.18	3.19	22.9	3.52	566.	195.	2.99	0.237	1.05
49	02.212	Women's footwear	6.9	5.84	2.90	19.5	3.40	484.	202.	1.73	0.242	1.01
50	02.213	Children's footwear	7.3	4.47	3.30	11.7	2.68	388.	177.	1.89	0.195	0.89
51	02.220	Footwear repairs	6.4	5.00	2.55	16.9	3.52	311.	112.	4.01	0.220	0.86
52	03.110	Gross rents	10.6	3.02	2.42	8.6	1.38	292.	261.	4.94	0.264	0.84
53	03.120	Indoor repair, upkeep	13.2	4.02	2.49	6.1	0.87	228.	184.	3.59	0.348	0.78
54	03.210	Electricity	7.3	7.76	4.24	31.8	7.39	761.	303.	9.34	0.338	1.29
55	03.220	Gas	6.1	9.76	7.91	15.9	7.22	1,359.	1,039.	11.33	0.823	1.69
56	03.230	Liquid fuels	10.8	5.61	3.34	41.9	12.97	644.	414.	17.14	0.413	1.61
57	03.240	Other fuels, ice	5.3†	5.85	4.38	6.9	2.89	739.	192.	1.86	0.292	0.91
58	04.110	Furniture, fixtures	10.5	4.67	2.77	19.1	3.19	469.	239.	3.71	0.530	1.07
59	04.120	Floor coverings	10.3†	6.22	3.91	28.7	0.49	706.	313.	8.71	0.303	0.73
60	04.200	Household textiles, etc.	11.2	6.66	5.69	28.0	2.39	744.	323.	8.11	0.269	1.34
61	04.310	Refrigerators, etc.	25.9	4.82	2.62	53.3	9.95	417.	599.	10.81	0.531	1.51
62	04.320	Washing appliances	64.2	9.14	5.22	29.5	7.50	591.	285.	12.14†	0.435	1.60
63	04.330	Cooking appliances	16.2	6.29	4.38	11.9	6.02	436.	211.	11.16†	0.357	1.14
64	04.340	Heating appliances	36.6	10.78	5.52	43.7	4.99	1,099.	566.	14.35†	0.814	2.13
65	04.350	Cleaning appliances	65.1	7.57	4.79	32.8	7.50	897.	427.	13.26†	0.823	2.02
66	04.360	Other household appliances	45.1	7.90	4.86	24.4	4.09	769.	312.	13.71	0.643	1.59
67	04.400	Household utensils	7.8	4.03	2.70	23.2	3.98	369.	212.	3.59	0.376	1.05
68	04.510	Nondurable household goods	10.4	5.45	3.65	28.3	4.39	549.	266.	6.66	0.278	1.30
	04.520	Domestic services	1.0	5.55	3.66	9.3	0.24	625.	136.	0.67	0.185	0.17
	04.530	Household services	5.7	5.90	4.14	13.9	1.10	526.	219.	3.72	0.242	0.85
	04.600	Household furnishing repairs	18.6	5.55	3.66	10.4	0.61†	625.	178.†	1.70	0.138	0.51
72	05.110	Drugs, medical preparations	18.5	2.76	3.35	11.5	2.44	396.	140.	3.55	0.152	0.79
73	05.120	Medical supplies	9.3	3.50	2.27	21.5	2.32	152.	194.	4.25	0.211	0.86
74	05.200	Therapeutic equipment	10.4	2.77	1.99	3.2	1.06	432.	69.	1.90	0.171	0.65
75	05.310	Physicians' services	3.4	7.13	3.65	2.0	0.23	424.	50.	1.53	0.178	0.60
76	05.320	Dentists' services	4.5	14.78	5.34	1.4	0.04	492.	35.	2.86	0.273	1.17
77	05.330	Services, nurses, other personnel	0.8	0.59	0.70	1.9	0.45	61.	31.	0.40	0.113	0.25
78	05.410	Hospitals, etc.	1.5	0.40	0.27	3.9	0.22	43.	34.	1.00	0.092	0.22
79	06.110	Personal cars	38.2	6.26	4.32	62.1	11.93	652.	363.	10.57	0.520	1.63
80	06.120	Other personal transport	35.9	6.54	3.53	24.1	6.33	626.	507.	10.01	0.608	1.40
81	06.210	Tires, tubes, accessories	17.9	5.30	4.15	14.6	7.36	436.	279.	9.77	0.216	1.13
82	06.220	Repair charges	4.5	7.51	4.29	18.1	1.10	487.	347.	1.36	0.164	0.95
83	06.230	Gasoline, oil, etc.	17.1	11.81	8.02	28.6	7.57	1,642.	590.	7.31	0.587	1.82
84	06.240	Parking, tolls, etc.	4.4†	3.06	2.43	5.4	1.34†	231.	273.	2.04	0.298	0.71
85	06.310	Local transport	2.7	3.91	2.95	9.0	1.42	338.	58.	1.97	0.223	0.45
86	06.321	Rail transport	3.7	3.22	2.62	11.9	2.19	255.	117.	3.15	0.283	0.69
87	06.322	Bus transport	4.0	5.23	2.63	15.0	2.10	343.	147.	2.66	0.233	0.87
88	06.323	Air transport	8.8	6.19	4.42	20.1†	7.22	619.	237.	11.98	0.317	1.46
89	06.330	Miscellaneous transport	6.3	4.52	2.79	25.3	1.61	340.	96.	2.26	0.720	0.86
90	06.410	Postal communication	7.1	4.15	2.22	12.8	1.97	519.	257.	4.96	0.308	0.87
91	06.420	Telephone, telegraph	2.6	5.47	3.13	7.8	1.69	372.	192.	3.16	0.217	0.74
92	07.110	Radio, TV, phonograph, etc.	24.8	10.45	4.81	37.9	7.12	991.	198.	10.51	0.560	1.61
93	07.120	Major durable recreation equip.	23.8	6.04	3.37	26.3	7.12†	621.	198.	11.57	0.444	1.28
94	07.130	Other recreation equipment	24.2	6.16	4.12	25.2	5.63	653.	266.	7.25	0.408	1.30
95	07.210	Public entertainment	6.8	2.98	1.68	4.8	2.34	459.	362.	2.08	0.130	0.65
96	07.230	Other recreation, cultural events	5.9	3.24	3.35	2.5	1.02	380.	153.	2.53	0.251	0.59
97	07.310	Books, papers, magazines	10.2	3.92	3.18	11.9	2.66	505.	332.	3.59	0.159	0.92
98	07.320	Stationery	10.1	4.49	3.62	44.6	1.55	429.	282.	13.74	0.317	1.06
99	07.411	Teachers, 1st, 2nd	1.3	4.29	2.54	3.8	0.17	267.	92.	0.76	0.191	0.53
100	07.412	Teachers, college	6.4	13.40	7.57	5.3	0.52	589.	138.	5.36	0.280	0.91

TABLE 9-7, continued

Appendix Table 14.3. Continued

			Colombia (peso)	France (franc)	Germany, F.R. (D.mark)	Hungary (forint)	India (rupee)	Italy (lira)	Japan (yen)	Kenya (shilling)	U.K. (pound)	International prices
101	07.420	Educational facilities	9.3	5.65	3.71	24.1	5.02	690.	356.	7.09	0.417	1.32
102	07.431	Educational supplies	10.7	3.94	3.20	11.1	2.70	507.	322.	5.81	0.154	0.95
103	07.432	Other education expenditures	12.7	5.39	4.08	23.2	3.53	595.	381.	4.97	0.330	1.33
104	08.100	Barber, beauty shops	4.8	2.97	2.05	3.4	1.33	280.	135.	2.59	0.133	0.53
105	08.210	Toilet articles	15.1	5.34	3.76	11.7	5.52	694.	307.	12.81	0.352	1.26
106	08.220	Other personal-care goods	9.4	8.39	4.95	28.9	4.09	692.	194.	3.76	0.279	1.39
107	08.310	Restaurants, cafes	10.5	3.93	2.90	19.7	3.15	520.	130.	2.56	0.387	1.00
108	08.320	Hotels, etc.	8.1	3.72	2.47	16.8	3.79	451.	267.	4.01	0.285	0.97
109	08.400	Other services	4.6	3.61	2.40	10.4	0.76	304.	148.	2.14	0.227	0.65
111	10.100	1- and 2-dwelling buildings	4.5	5.85	4.04	17.0	1.68	506.	256.	3.27	0.188	0.91
112	10.200	Multidwelling buildings	3.9	3.93	2.11	15.7	1.60	302.	247.	3.61	0.199	0.79
113	11.100	Hotels, etc.	3.8	1.97	1.39	16.8	1.70	229.	290.	4.86	0.399	0.69
114	11.200	Industrial buildings	6.4	4.04	2.44	24.5	2.31	413.	435.	4.48	0.379	1.06
115	11.300	Commercial buildings	4.3	2.47	1.65	19.6	1.64†	257.	426.	3.59	0.339	0.73
116	11.400	Office buildings	2.8	3.45	2.03	12.4	1.55	327.	284.	2.59	0.258	0.72
117	11.500	Educational buildings	2.8	6.45	3.60	14.1	1.72	460.	206.	2.63	0.306	0.94
118	11.600	Hospital buildings	3.6†	3.34†	2.06†	11.7	1.34	333.†	181.	3.19	0.242	0.74
119	11.700	Agricultural buildings	5.6†	6.00	4.35	21.8	2.51†	542.	765.	2.38	0.245	1.19
120	11.800	Other buildings	4.4†	4.10†	2.53†	21.4	1.99†	408.†	393.	4.04†	0.373	1.09
121	12.100	Roads, highways	4.3	2.95	1.99	17.0	1.61	244.	291.	8.95†	0.249	0.77
122	12.200	Transmission, utility lines	5.5	3.54	3.41	10.7	1.63†	409.	154.	7.05	0.209	0.78
123	12.300	Other construction	4.3	1.83	0.89	10.6	1.51	83.	188.	8.96	0.324	0.70
124	13.000	Land improvement	4.4	3.30	1.82	11.7	1.10	309.	149.	3.59	0.386	0.61
125	14.110	Locomotives	16.5	8.93	4.95	62.2	11.74†	986.	549†	6.84	0.800	2.35†
126	14.120	Other	13.6†	4.85†	4.50†	31.6†	6.80	739.†	384.†	9.46	0.560†	1.72
127	14.200	Passenger cars	35.0	4.65	5.61	69.5	8.81	783.	374.	8.15	0.670	1.59
128	14.300	Trucks, buses, trailers	31.6	4.93†	4.57†	27.8	9.01	751.†	390.†	6.99	0.569†	1.61
129	14.400	Aircraft	28.1	4.92	3.35	31.1†	8.11†	661.	379.†	6.76†	0.553†	1.46
130	14.500	Ships, boats	5.6†	3.83†	2.60†	16.9†	3.46†	405.†	267.†	5.49†	0.335†	0.93
131	14.600	Other transport	36.9	5.49	4.11	32.9†	5.57†	821.	401.	7.59	0.564†	2.02
132	15.100	Engines and turbines	29.3	5.60†	3.45†	45.8	9.34	515.†	304.	8.21	0.308·	1.75
133	15.210	Tractors	19.5	4.89	3.41	30.7	5.14	557.	288	6.81	0.322	1.35
134	15.220	Other agricultural machinery	32.3	5.38	3.90	23.0	6.77	868.	301.†	9.56	0.378	1.38
135	15.300	Office machinery	44.0	5.57	3.68	45.1	6.31	670.	303.†	9.98	0.431	1.32
136	15.400	Metalworking machinery	13.9	3.04	2.74	29.0	5.32	327.	410.	4.48	0.283	1.11
137	15.500	Construction, mining	32.1	7.89	5.66	36.5	9.20†	881.	303.	9.92	0.357	1.73
138	15.600	Special industrial	21.8	4.89	3.38	34.3	5.83	521.	217.	6.64	0.366	1.34
139	15.700	General industrial	29.9	3.59	2.57	27.8	7.53	422.	292.	7.54	0.314	1.19
140	15.800	Service industrial	36.5	9.13	6.80	37.3	7.63	523.	302.†	11.09	0.363†	1.53
141	16.100	Electrical transmission	32.3	3.60	2.83	22.1	9.08	401.	260.†	5.44	0.310†	1.09
142	16.200	Communication equipment	23.7	5.46	3.66	15.3	9.08†	591.	347.†	11.93	0.540	1.43
143	16.300	Other electrical	11.1†	3.60	2.96	27.1	5.78†	272.	351.	4.89†	0.214	1.00
144	16.400	Instruments	24.9	4.23	2.89	25.6	3.38	577.	395.	7.28	0.164	1.12
145	17.100	Furniture, fixtures	18.3	4.24	3.71	23.9	6.30	568.	314.†	5.91	0.199	1.22
146	17.200	Other durable goods	16.7	6.61	4.67	51.2	9.68†	786.	370.†	6.65	0.442†	1.65
147	18.000	Increase in stocks	14.0	5.26	3.98	23.4	3.45	606.	326.	5.51	0.381	1.36
148	19.000	Exports less imports	18.6	5.55	3.66	30.0	7.50	625.	360.	7.14	0.417	1.50
149	20.100	Blue-collar, unskilled	2.3	3.23	2.75	4.4	0.34	346.	142.	0.48·	0.153	0.23
150	20.210	Blue-collar, skilled	3.0	3.12	2.48	5.0	0.37	345.	118.	1.18	0.145	0.69
151	20.220	White-collar	3.6	4.00	2.89	5.3	0.38	391.	124.	1.91	0.201	0.51
152	20.300	Professional	6.4	4.03	3.56	5.9	1.21	492.	243.	4.26	0.274	0.83
153	21.000	Government expenditure on commodities	8.0	4.63	3.16	21.2	2.45	472.	254.	4.19	0.309	1.06

Note: The net expenditure of residents abroad, line 110 in the binary tables, has been consolidated with other services (line 109) in the multilateral comparisons. Thus there are 152 categories in this table. See page 70.

†The PPPs for these items where price and quantity data were missing have been estimated by applying the double-weighted CPD method and are considered less reliable than direct esumates. The corresponding quantity estimates in Table 14.5 share the same weakness.

Appendix Table 14.4. Quantities per Capita with U.S.=100, 1970

			Colombia	France	Germany, F.R.	Hungary	India	Italy	Japan	Kenya	U.K.	U.S.
1	01.101	Rice	432.0	66.2	62.4	69.2	1,727.2	55.5	2,805.5	29.0	18.1	100.0
2	01.102	Wheat and other cereals	53.9	24.6	95.3	139.1	373.4	25.3	14.9	366.7	34.7	
3	01.103	Bread, rolls	22.7	315.4	306.8	330.6	0.7	258.4	54.3	10.6	243.2	100.0
4	01.104	Biscuits, cakes	3.8	81.0	55.9	21.9	0.2	39.6	108.4	9.6	153.8	100.0
5	01.105	Cereal preparations	12.3	3.5	8.1	118.7	1.6	1.8	6.2	1.2	56.5	100.0
6	01.106	Macaroni, spaghetti, related foods	146.8	216.7	188.6	111.5	2.1	980.2	287.4	0.7	43.1	100.0

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CHAPTER TEN

Accessing the Data Base

10.1 Access to TROLL

As stated elsewhere in this document, all of the data is stored at the Information Processing Service at MIT on TROLL, a software package which provides a comprehensive environment for creating, estimating and simulating economic models. Any profit or non-profit organization can obtain a computer account at IPS and access it via Telenet, which allows the user to make a local phone call to connect with IPS. For more information on TROLL, contact Charlie Byron at IPS (address: 39-485 MIT; telephone: 253-8421). Special arrangements must be made with the World Oil Project at the Energy Lab at MIT to obtain the privilege to 'read' the project's account at IPS.

10.2 Accessing on Tape

Most users in the past have obtained copies of the data base on magnetic tape. There is a charge for the computer time and other costs involved in making the tape. The tape can be formatted to be compatible with TROLL, or put on the tape in a general or fortran type of format.

The specifications of a TROLL format type of tape are:

9 track
density = 1600 BPI
fixed block record format
logical record length = 80
block size = 20,000

The specifications of a standard format type of tape are:

9 track
density = 1600 BPI
fixed block record format
logical record length = 80
block size = 1600

For information on obtaining a copy of the tape, contact Jackie Carson at the MIT Energy Laboratory, Building E40-132, telephone 253-1443.

10.3 TROLL Data Files

Two types of files are utilized for this database. Most common is the one-dimensional data file. Below is a copy of that kind of data file, in TROLL format. In includes the file name, comment section, and the data. 'NA' is used to fill a year when the data is "not available".

```
TROLL COMMAND: .prtdata arg_fprmg;


SECOND_ARG_FPRMG  -   DATE REVISED:  3/14/77
  ANNUAL DATA FROM 1950 TO 1974

  QUANTITY OF MOTOR AND AVIATION GASOLINE
  TCALS   207   CONV FROM M MET TONS BY: *11200

 1950      18312.          17001.6          17494.4          17505.6
 1954      18692.8         19891.2          19230.4          22097.6
 1958      22635.2         19409.6          22601.6          27563.2
 1962      32054.4         30329.6          32368.           37654.4
 1966      39648.          39715.2          40376.           44329.6
 1970      44968.          48070.4          49795.2          55059.2
 1974      47040.

TROLL COMMAND: .
```

(Figure 10-1)

Data is sometimes stored in a matrix format which is created from data files with a special command. A matrix has two dimensions, rows and columns, the rows being the years, the columns headed by countries. The countries for the columns are always ordered alphabetically, from left to right. (See next page, Figure 10-2). Matrices can have accompanying label files which are created by the user to label the rows and columns, but these have not been used in Figure 10-2.

Both data files and matrices are used in the data base, the majority of data stored as the single dimension data file. Matrices are easy to identify from data files, because in the list of data file names they are the only names not preceded by a country or region, i.e., "arg_fprmg" (arg for Argentina) for final consumption of motor gas and "pl" for price of labor, for all countries in the industrial section.

The print commands are included here just to show the different types of data files used. This is not an exhaustive list of data storage possibilities on TROLL. No other commands have been explained in this text. For complete information on data manipulation and data editing on TROLL, consult the TROLL Primer or manual.

Figure 10-2

```
TROLL COMMAND: .do prtmat (pl);

PL

  ROW      COLUMN 1        COLUMN 2        COLUMN 3        COLUMN 4

1             NA              NA              NA              NA
2             NA              NA              NA              NA
3             NA              NA              NA              NA
4             NA              NA              NA              NA
5             NA              NA              NA              NA
6             NA              NA              NA              NA
7             NA              NA              NA              NA
8             NA              NA              NA              NA
9             NA              NA              NA              NA
10            NA              NA              NA              NA
11          0.586538          NA            0.28983         0.175849
12          0.600121          NA            0.298559        0.189351
13          0.607137        0.293384        0.330187        0.209077
14          0.620886        0.299104        0.361865        0.223343
15          0.627017        0.305527        0.382128        0.240449
16          0.643395        0.326552        0.39611         0.257698
17          0.659084        0.334104        0.397815        0.270594
18          0.683894        0.346633        0.422968        0.289595
19          0.71001         0.368235        0.44687         0.322234
20          0.730993        0.335445        0.470313        0.365012
21          0.753792        0.405898        0.528741        0.40601
22          0.787071        0.423154        0.584159        0.450074
23          0.804023        0.444302        0.63114         0.496714
24          0.806081        0.467799        0.707671        0.553923
25          0.800629          NA              NA              NA

  ROW      COLUMN 5        COLUMN 6        COLUMN 7        COLUMN 8

1             NA              NA              NA              NA
2             NA              NA              NA              NA
3             NA              NA              NA              NA
4             NA              NA              NA              NA
5             NA              NA              NA              NA
6             NA              NA              NA              NA
7             NA              NA              NA              NA
8             NA              NA              NA              NA
9             NA            0.377488          NA              NA
10            NA            0.407356          NA              NA
11          0.31344         0.408911        0.50003         0.312835
12          0.347306        0.426102        0.532934        0.322942
13          0.357869        0.45065         0.57235         0.330543
14          0.37337         0.453258        0.629199        0.333216
15          0.403107        0.459595        0.652129        0.350638
16          0.425104        0.481847        0.677412        0.360006
17          0.448913        0.504619        0.698307        0.377803
18          0.479501        0.534985        0.739691        0.374786
19          0.508641        0.58138         0.791179        0.3825
20          0.542555        0.623604        0.83833         0.394192
21          0.594159        0.621557        0.871322        0.420461
22          0.627764        0.663684        0.916597        0.442657
23          0.66393         0.694631        0.976461        0.462251
24          0.705536        0.722262        1.01322         0.48228
25            NA              NA            1.08863         0.514676

  ROW      COLUMN 9        COLUMN 10

1             NA              NA
2             NA              NA
3             NA              NA
4             NA              NA
5             NA              NA
6             NA              NA
7             NA              NA
8             NA              NA
9             NA              NA
10            NA              NA
11          0.837426        0.296388
12          0.856062        0.305986
13          0.859523        0.312015
14          0.877514        0.345072
15          0.901492        0.361505
16          0.908919        0.383264
17          0.924181        0.403534
18          0.[illegible]   0.[illegible]
19          0.[illegible]   0.[illegible]
20          0.[illegible]   0.[illegible]
21          0.[illegible]   0.[illegible]
22          1.002108        0.[illegible]
23          1.00[illegible] 0.[illegible]
24          1.06[illegible] 0.[illegible]
25          1.05[illegible] 0.[illegible]

TROLL COMMAND: .
```

Rows

1: 1950

2: 1951

25: 1974

Columns

1: Canada

2: France

3: Italy

4: Japan

5: Netherlands

6: Norway

7: Sweden

8: UK

9: USA

10: West Germany